FILE 'WPIX, JAPIO' ENTERED AT 10:05:42 ON 16 SEP 2002

L1 27877 S THIN(W) FILM(W) TRANSISTOR OR TFT

L2 1359316 S LIGHT(W) EMITTING OR DIODE OR LIGHT OR LED OR LUMINESCENCE OR ELECTROLUMINESCENCE

L3 2909 S (S02-K04C OR T04-H03C1 OR W02-J02B2A)/MC

L4 45232 S (G01D-007 OR G09G-003 OR H04N-001/036)/IC

L5 84825 S TIN OR TAN OR (TATANIUM OR TANTALUM)(N)(NITRIDE) OR TANTALUM(W) MONONITRIDE OR TITANIUM(W) MONONITRIDE

L6 883261 S TUNGSTEN OR W OR AL OR ALUMINUM OR ALUMINIUM

L7 49352 S (SILICON OR SI)(W)(NITRIDE) OR (SILICON OR SI)(W)(OXYNITRIDE) OR SIN OR (SILICON(W) OXIDE(W) NITRIDE) OR DISILICON(W) OXYDINITRIDE OR (SILICON(W) NITRIDE(W) OXIDE)

L8 429 S SI(N) O(N) N

L9 4746 S L1 AND L2

L10 82 S L9 AND L5

L11 30 S L10 AND L6

D BIB AB 1-30

L12 185 S L9 AND L7

L13 1 S L9 AND L8

L14 18 S L12 AND L5

L15 18 S L12 AND L5

L16 93 S L12 AND GATE(W) ELECTRODE

L17 12117 S L2 AND ((L3 OR L4))

L18 11855 S L17 NOT L9

L19 36 S L18 AND L5

L20 4 S L14 NOT L11

D BIB AB 1-4

L21 29 S L19 NOT (11 OR L14)

D BIB AB 1-29

L11 ANSWER 1 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2002-547205 [58] WPIX
DNN N2002-433238 DNC C2002-155032
TI Fabrication of **thin film transistor** for display devices, e.g. liquid crystal display, involves offsetting crystallization inducing metal using mask used for forming lightly doped drain region of offset junction region.
DC L03 U11 U12 U13 U14
IN JOO, S K; LEE, S W
PA (PLUS-N) PT PLUS CO LTD
CYC 1
PI US 2002068392 A1 20020606 (200258)* 27p
ADT US 2002068392 A1 US 2001-826439 20010404
PRAI KR 2000-72592 20001201
AB US2002068392 A UPAB: 20020910
NOVELTY - A **thin film transistor** (**TFT**) is fabricated by offsetting a crystallization inducing metal (35) from a channel region of an active layer using a mask used for forming lightly doped drain (LDD) region or offset junction region.
USE - For fabricating **TFT** used for display devices, e.g. liquid crystal display and organic **light emitting diode**.
ADVANTAGE - The invention forms a metal offset region without using an additional photoresist forming process, and dopes the metal offset region with an impurity of low density. Thus, a transistor is fabricated having low leakage current in its off-state, and stable electrical characteristics in its on-state.
DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of a method for fabricating a crystalline silicon **TFT**.
Gate electrodes 33, 34
Crystallization inducing metal layer 35
Dwg.3C/8

L11 ANSWER 2 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2002-527298 [56] WPIX
DNN N2002-417408
TI Liquid crystal display driving method for portable electronic equipment e.g. portable computer has pixel electrode sub-frame period replaced with the frame period to form an image.
DC P81 P85 T04 U11 U12 U14
IN SATAKE, R
PA (SEME) SEMICONDUCTOR ENERGY LAB; (SATA-I) SATAKE R
CYC 2
PI US 2002075216 A1 20020620 (200256)* 30p
JP 2002175064 A 20020621 (200256) 20p
ADT US 2002075216 A1 US 2001-966354 20010927; JP 2002175064 A JP 2001-296224 20010927
PRAI JP 2000-300754 20000929
AB US2002075216 A UPAB: 20020903
NOVELTY - Method of driving liquid crystal display (LCD) device has addressed (i,j) pixel **thin film transistor** (**TFT**) electrode (118), connected to first signal line voltage in first sub-frame period and has a second signal voltage potential in second sub-frame. The response time of liquid crystal is calculated to be when the first signal changes to second signal voltage and if it is long, the

potential is applied to pixel **TFT** in the second frame and signals are written successively to pixel **TFT** and form an image in the second sub-frame period.

DETAILED DESCRIPTION - This method is applied simultaneously to many pixel electrodes displaying the same grey-scale and the sub-frame period is replaced with the frame period. First, second and third emission colors of **light** are then incident on the LCD. Storing means (101,102) are required to store the potentials from the signal line.

An INDEPENDENT CLAIM is included for:

(1) a liquid crystal display device.

USE - In portable electronic equipment e.g. portable computer, digital camera, mobile telephone, DVD, CD player etc.

ADVANTAGE - The optical response of the liquid crystal is allowed to be completed as early as possible in driving of a field sequential liquid crystal display device. The response time of the liquid crystal becomes shorter, the lighting period of a **light** source can be made longer to conduct a **light** display.

DESCRIPTION OF DRAWING(S) - The drawing shows a circuit configuration for driving the LCD device.

TFT pixel 118

pixel addressing i,j

potential storage units 101,102

comparator 103

x-decoder 106

y-decoder 105

writing controller 109

Dwg.1/14

L11 ANSWER 3 OF 30 WPIX (C) 2002 THOMSON DERWENT

AN 2002-414721 [44] WPIX

DNN N2002-326132 DNC C2002-117085

TI **Thin film transistor** array substrate for liquid crystal display device, has drain contact hole in protective layer through which pixel electrodes contact drain.

DC L03 U11 U12 U13 U14

IN CHAE, G

PA (CHAE-I) CHAE G

CYC 1

PI US 2002042167 A1 20020411 (200244)* 21p

ADT US 2002042167 A1 US 2001-972963 20011010

PRAI KR 2000-59429 20001010

AB US2002042167 A UPAB: 20020711

NOVELTY - Gate electrodes extended from transverse gate line over substrate (100), are surrounded by metallic oxide, and gate insulation is mounted on it. Active and ohmic contact layers are formed on gate insulation layer, on which source electrode and drain electrode (135) are formed. **TFT** has protection layer with drain contact hole (143) through which drain electrode contacts by pixel electrodes (117) in pixel region.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) Method of forming **TFT** array substrate;

(2) Insulated conductor structure; and

(3) Method of forming insulated conductor structure.

USE - In liquid crystal display (LCD) devices such as in-plane switching mode LCD (IPS-LCD) devices.

ADVANTAGE - The pixel and common electrodes generate electric fields

that control **light** passing through liquid crystal cells. By controlling the field, the desired characters or images are displayed. The **TFT** array substrate prevents the erosion and damage of the gate electrode and gate line. Copper ions do not diffuse into the liquid crystal layer after liquid crystal display is complete. Thus malfunction does not occur, preventing inferior goods while increasing manufacturing yield.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of **thin film transistor** array substrate.

Substrate 100

Pixel electrodes 117

Drain electrode 135

Drain contact hole 143

Dwg.19/22

L11 ANSWER 4 OF 30 WPIX (C) 2002 THOMSON DERWENT

AN 2002-254746 [30] WPIX

DNN N2002-196822 DNC C2002-076032

TI **Thin-film transistor** production for use in e.g. liquid crystal display, involves four photolithography and etching steps.

DC L03 P81 U11 U12 U14

IN LUO, F; YANG, J; YANG, C

PA (UNIP-N) UNIPAC OPTOELECTRONICS CORP; (LUOF-I) LUO F; (YANG-I) YANG C

CYC 2

PI US 2001035528 A1 20011101 (200230)* 11p

TW 447138 A 20010721 (200230)

ADT US 2001035528 A1 US 2001-843994 20010427; TW 447138 A TW 2000-108111 20000428

PRAI TW 2000-108111 20000428

AB US2001035528 A UPAB: 20020513

NOVELTY - A **thin-film transistor** is formed on an insulation substrate by subsequently forming and photolithography etching a first conductive layer, a gate dielectric layer, a silicon layer and a doped silicon layer; a second conductive layer; a protection layer; and a transparent conductive layer.

DETAILED DESCRIPTION - The production of a **thin-film transistor** (**TFT**) on an insulation substrate includes forming a first conductive layer, a gate dielectric layer (220), a silicon layer (230) and a doped silicon layer (240) on an insulation substrate (200). The doped silicon layer, the silicon layer, the gate dielectric layer and the first conductive layer are patterned using first photolithography and etching step to form a gate (210a) and a gate line. A second conductive layer (250) is formed over the substrate. A second photolithography and etching step is performed on the second conductive layer and the silicon doped layer to form source/drain conductive layers (250a), a source/drain line structure (250b) at both sides of the gate line, and source/drain regions (240a) underlying the source/drain conductive layer. A protection layer is formed over the substrate. A third photolithography and etching step is performed on the protection layer to form openings and to expose source/drain conductive layer and line structure. A transparent conductive layer is formed on the protection layer and the openings to connect with the source/drain line structure and conductive layers. A fourth photolithography and etching step is performed on the transparent conductive layer, so that a pixel electrode connected with a portion of the source/drain conductive layer is formed and a portion of the patterned transparent conductive layer

electrically connects another portion of the source/drain conductive layer with the conductive line structure.

USE - For the production of a **TFT** used in flat panel display panel (e.g. liquid crystal display and organic **light-emitting diode**), fax machine and contact image sensor.

ADVANTAGE - The total number of photolithography and etching steps is reduced from five to four. The fabrication cost is decreased and product yield is enhanced.

DESCRIPTION OF DRAWING(S) - The figures are cross-sectional views of process steps in the production of the **TFT**.

Insulation substrate 200
Gate 210a
Gate dielectric layer 220
Silicon layer 230
Doped silicon layer 240
Source/drain regions 240a
Second conductive layer 250
Source/drain conductive layers 250a
Source/drain line structure 250b
Dwg.4, 5A/7

L11 ANSWER 5 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2002-239049 [29] WPIX
DNN N2002-184314 DNC C2002-071993
TI **Light emitting** device for use as Electro luminescent display includes gate electrode layers, each with a different kind of conductive film.
DC L03 P85 U11 U12 W04 X22
IN FUKUNAGA, T; INUKAI, K; KOYAMA, J; YAMAZAKI, S
PA (SEME) SEMICONDUCTOR ENERGY LAB; (FUKU-I) FUKUNAGA T; (INUK-I) INUKAI K; (KOYA-I) KOYAMA; (YAMA-I) YAMAZAKI S
CYC 2
PI US 2001055841 A1 20011227 (200229)* 37p
JP 2002057162 A 20020222 (200230) 25p
ADT US 2001055841 A1 US 2001-832867 20010412; JP 2002057162 A JP 2001-118527 20010417
PRAI JP 2000-115699 20000417
AB US2001055841 A UPAB: 20020508

NOVELTY - A **light emitting** device includes a gate electrode layers, each with a different kind of conductive film. The conductive films having different thicknesses are provided by making use of their selectivity in etching and are used as masks for adjusting concentrations of impurity regions formed on an active layer.

DETAILED DESCRIPTION - A **light emitting** device comprises an n-channel **thin film transistor** and a **light emitting** element in each of the pixels. The n-channel **thin film transistor** comprises an active layer including:

(a) a channel forming region (116);
(b) an n-type impurity region adjacent to the channel forming region;
(c) an n-type impurity region adjacent to (b); and
(d) an n-type impurity region adjacent to (c).

A gate insulating layer is provided on the active layer and a gate electrode (111) is provided on the gate insulating layer. The gate electrode comprises a first gate electrode (109a) provided on the gate insulating layer and a second gate electrode (110) provided on the first gate. The first gate electrode overlaps the channel forming region and the

n-type impurity region (b) with the gate insulating layer in-between. The second gate electrode overlaps the channel forming region with the gate insulating layer in-between.

An INDEPENDENT CLAIM is also included for a the manufacture of a **light emitting** device comprising forming a semiconductor film on an insulating material, forming an insulating film covering the semiconductor film, forming a conductive film on the insulating film by laminating two or more conductive layers, forming a gate electrode by etching the conductive film, adding an n-type impurity element to the semiconductor film using the gate electrode as a mask, etching a side face of the gate electrode before selectively etching a first portion of the gate electrode, adding an n-type impurity element to the semiconductor film after the etching step through a second part of the gate electrode using the gate electrode except the second portion as a mask, forming an insulating film covering the gate electrode, forming wirings on the insulating film to be in contact with the semiconductor film and forming a **light emitting** element on the insulating film.

USE - Electro luminescent display, video camera, digital camera, portable computer, personal computer, portable telephone or car audio stereo (claimed).

ADVANTAGE - The device reduces the photolithography steps in relation to manufacturing the **thin film transistor** for improving yield of the **light emitting** device and has shorter manufacturing term. It is also inexpensively produced.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-section of the n-channel **thin film transistor** during manufacture.

First gate electrode 109a
Second gate electrode 110
Gate electrode 111
Channel forming region 116

Dwg.1D/19

L11 ANSWER 6 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2002-197327 [26] WPIX
DNN N2002-149896
TI Self-**light emitting** device used for electrical appliances such as portable game machine, has electroluminescent element covered with inorganic material film which is further covered with organic material film.
DC T01 T04 U14 W01 W04 X26
IN NORIKO, I; SHUNPEI, Y
PA (SEME) SEMICONDUCTOR ENERGY LAB; (SEME) SEL SEMICONDUCTOR ENERGY LAB
CYC 29
PI EP 1139453 A2 20011004 (200226)* EN 38p
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
CN 1320971 A 20011107 (200226)
JP 2001345174 A 20011214 (200226) 21p
KR 2001098431 A 20011108 (200227)
ADT EP 1139453 A2 EP 2001-107616 20010327; CN 1320971 A CN 2001-117396 20010327; JP 2001345174 A JP 2001-87851 20010326; KR 2001098431 A KR 2001-16006 20010327
PRAI JP 2000-87355 20000327
AB EP 1139453 A UPAB: 20020424
NOVELTY - The self-**light emitting** device has an electroluminescent (EL) element covered or contacted with an inorganic

material film which is covered with an organic material film. Alternately, the device has an EL element covered or contacted with an organic material film which is covered with an inorganic material film.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) Electric appliance using self-**light emitting** device; and

(b) Method of manufacturing self-**light emitting** device

USE - For electrical appliances (claimed) such as video camera, digital camera, goggles-type display (head mount display), navigation system, sound reproduction device (car audio equipment and audio set), note-size personal computer, game machine, portable information terminal (mobile computer, portable telephone, portable game machine, electronic book), and image reproduction apparatus including recording medium such as digital video disk (DVD).

ADVANTAGE - The electroluminescent display is of self-emission type and therefore requires no back **light**. The display portion has a thickness thinner than that of liquid crystal display device. The self-emission device exhibits high response speed. The cover layer has moisture absorbing effect which prevents penetration of moisture inside the element. The barrier and cover layers completely cut off the EL element from external environment and invasion from moisture and oxygen which accelerate the oxidative degradation of EL layer. The provision of cover layer is effective for the stress relaxation of **thin film transistor** or EL element.

Dwg.0/16

L11 ANSWER 7 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2002-089103 [12] WPIX
DNN N2002-065635 DNC C2002-027345
TI **Electroluminescence** display device for use as, e.g. video camera, includes **light**-shielding metal film on anode, to conceal gaps between pixels.
DC L03 P85 T01 U14 W01 W03 W04 X22
IN ISHIMARA, N; NISHI, T; ISHIMARU, N
PA (SEME) SEMICONDUCTOR ENERGY LAB; (SEME) SEL SEMICONDUCTOR ENERGY LAB
CYC 30
PI US 2001004190 A1 20010621 (200212)* 29p
CN 1300105 A 20010620 (200212)
EP 1109225 A2 20010620 (200212) EN
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
JP 2001236027 A 20010831 (200212) 18p
KR 2001062490 A 20010707 (200212)
ADT US 2001004190 A1 US 2000-735096 20001211; CN 1300105 A CN 2000-135978 20001215; EP 1109225 A2 EP 2000-127537 20001215; JP 2001236027 A JP 2000-381101 20001214; KR 2001062490 A KR 2000-77045 20001215
PRAI JP 1999-356732 19991215
AB US2001004190 A UPAB: 20020221
NOVELTY - **Electroluminescence** display device has an active-matrix substrate over which pixels, having pixel electrode electrically connected to a **thin film transistor** are arranged. A **light**-shielding metal film is provided on an anode to conceal gaps between the pixels.

DETAILED DESCRIPTION - An **electroluminescence** (EL) display device has an active-matrix substrate (101) over which pixels (102),

having pixel electrode (105) electrically connected to a **thin film transistor** (103, 104), are arranged; and EL element (106) comprising the pixel electrode as a cathode, an EL layer (107), and an anode. A metal film (109) is also provided on the anode (108) to conceal edges of the pixels and gaps (111) between the pixels.

USE - Used as video camera, head-mount display, personal computer, car navigation system, mobile telephone, or car audio equipment. (all claimed).

ADVANTAGE - The average film resistance of the anode in the EL device is reduced. **Light** leakage from the gaps between the pixels can be prevented, resulting in an image display with high definition. By utilizing the inventive device as a display section, electrical equipment with the high reliability and high visibility are provided.

DESCRIPTION OF DRAWING(S) - The drawing shows a view of a pixel section of an EL display device.

active-matrix substrate 101
pixels 102
thin film transistor 103, 104
pixel electrode 105
EL element 106
EL layer 107
anode 108
metal film 109
gaps 111
Dwg.1/15

L11 ANSWER 8 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2002-009709 [01] WPIX
CR 2001-217262 [03]
DNN N2002-008077 DNC C2002-002333
TI Flat panel display device for liquid crystal displays, has substrates with pair of display electrodes, pixel element electrodes formed between substrates, and liquid crystal material layer formed between electrodes.
DC L03 P81 U14
IN YANIV, Z
PA (YANI-I) YANIV Z
CYC 1
PI US 6310675 B1 20011030 (200201)* 10p
ADT US 6310675 B1 CIP of US 1997-996224 19971222, US 1998-205213 19981204
FDT US 6310675 B1 CIP of US 6147666
PRAI US 1998-205213 19981204; US 1997-996224 19971222
AB US 6310675 B UPAB: 20020105

NOVELTY - The flat panel display device comprises display pixel elements each of which consisting of 4 electrodes. The device has display substrates (14,16) having at least display electrodes (18,20), respectively for each pixel element disposed, pixel element electrodes (30,32) formed between the substrates, and a liquid crystal material layer formed between electrodes (18,20) and electrodes (30,32).

DETAILED DESCRIPTION - The pixel element electrodes (30,32) are electrically insulated from the electrodes (18,20).

USE - For active matrix liquid crystal displays (AMLCD's) used as video monitors in laptop computers, video cameras and avionic navigation modules.

ADVANTAGE - The flat panel display device does not require polarizers for the display, and hence the display is obtained inexpensively with reduced complexity. A large number of intermediate optical states are produced by varying the size, extent and duration of electrical fields

applied to the pairs of electrodes. The control of electrodes are aided by using switching elements such as **thin film transistors (TFTs)**, **diodes** or other commonly known devices. One or more color filter layers are employed in combination with the substrate of the display device to achieve full color display devices. The display device has higher optical efficiency, and faster display response times. Multiple intermediate optical states are possible by applying varying amounts of electrical charge to the two pairs of electrodes at the same time. The desired optical effects are accomplished by employing in-plane-switching to the pairs of electrodes.

DESCRIPTION OF DRAWING(S) - The figure shows the cross sectional view of single liquid crystal display (LCD) pixel.

Display substrates 14,16

Electrodes 18,20,30,32

Dwg.1/12

L11 ANSWER 9 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2001-540988 [60] WPIX
DNN N2001-402087 DNC C2001-161397
TI Liquid crystal display device, e.g. for word processors, includes reflection electrode on base substrate.
DC L03 P81 U14
IN TAKAYAMA, M; TANAKA, N
PA (SHAF) SHARP KK; (TAKA-I) TAKAYAMA M; (TANA-I) TANAKA N
CYC 4
PI US 2001015781 A1 20010823 (200160)* 23p
CN 1307248 A 20010808 (200173)
JP 2001281701 A 20011010 (200175) 16p
KR 2001078076 A 20010820 (200212)
ADT US 2001015781 A1 US 2001-766592 20010123; CN 1307248 A CN 2001-103393 20010131; JP 2001281701 A JP 2000-380526 20001214; KR 2001078076 A KR 2001-3719 20010126
PRAI JP 2000-380526 20001214; JP 2000-16680 20000126
AB US2001015781 A UPAB: 20011018

NOVELTY - A liquid crystal display device includes a reflection electrode on a base substrate (10, 50). The electrode has a double layer structure of a first metal layer containing molybdenum and a second metal layer containing **aluminum** formed on the first metal layer.

DETAILED DESCRIPTION - A liquid crystal display device comprises a pair of substrate, a liquid crystal layer (60) interposed between the substrates, and electrode pairs each facing each other via the liquid crystal layer. One of the pair of electrodes is a reflection electrode (12) for realizing display in a reflection mode. The reflection electrode includes a first metal layer (16) containing molybdenum and a second metal layer (14) containing **aluminum** formed on the first metal layer. The first metal layer is a crystal layer having a maximum grain size of crystal grains at a surface of at most 60 nm or an amorphous layer.

An INDEPENDENT CLAIM is also included for:

(A) a method of fabricating the liquid crystal display device comprising forming a first metal layer containing molybdenum on a substrate, forming a second metal layer containing **aluminum** on the first metal layer, and patterning the first and second metal layers; and

(B) a wiring substrate comprising interconnection or electrodes formed on a substrate, comprising multilayer structure including a transparent conductive layer made of indium **tin** oxide.

USE - For word processors, laptop computers, or pocket television

sets.
ADVANTAGE - The device is capable of realizing reflection-mode display by use of ambient **light**, and prevents/suppresses occurrence of partial loss of an **aluminum** layer formed on a molybdenum layer due to a pinhole in the **aluminum** layer.
DESCRIPTION OF DRAWING(S) - The figure shows a cross- sectional view of the liquid crystal display device.
Base substrate 10, 50
Display area 10A
Reflection electrode 12
Second metal layer 14
First metal layer 16
Liquid crystal layer 60
Dwg.1A/11

L11 ANSWER 10 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2001-456349 [49] WPIX
DNN N2001-338137 DNC C2001-137934
TI Semiconductor device structure, e.g. photovoltaic cell, has semiconductor layer which formed between pair of buffer layers on polymer substrate.
DC A85 L03 U12
IN WALPITA, L M
PA (WALP-I) WALPITA L M
CYC 1
PI US 6236061 B1 20010522 (200149)* 9p
ADT US 6236061 B1 US 1999-227467 19990108
PRAI US 1999-227467 19990108
AB US 6236061 B UPAB: 20010831
NOVELTY - A semiconductor (10) is sandwiched between a pair of buffer layers, which are formed on a polymer substrate (12). The substrate includes particulate filler for reducing the coefficient of thermal expansion (CTE) of the polymer to less than 40 ppm/ deg. C.
USE - In e.g. **light** detectors, **light emitting diodes** (**LED**), **thin film transistors** (**TFT**), CMOSs, SRAMs, photovoltaic cells or solar cells.
ADVANTAGE - Improves film integrity without cracks.
DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of the electronic device.
Semiconductor 10
Polymer substrate 12
Dwg.1/6

L11 ANSWER 11 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2000-557636 [51] WPIX
DNN N2000-412640 DNC C2000-165893
TI Multi-domain liquid crystal display device includes common electrode provided with electric field distorting holes corresponding to electric field distorting recesses of color filter.
DC A85 L03 P81 U14
IN KIM, G J; LEE, Y B; KIM, K J
PA (GLDS) LG PHILIPS LCD CO LTD
CYC 2
PI US 6100953 A 20000808 (200051)* 25p
KR 2000015769 A 20000315 (200104)
ADT US 6100953 A US 1999-377897 19990820; KR 2000015769 A KR 1998-56136 19981218

PRAI KR 1998-56136 19981218; KR 1998-33812 19980820
AB US 6100953 A UPAB: 20001016
NOVELTY - Color filter (23) with electric field distorting recesses are formed on a **light** shield layer (25) which is formed on a substrate. A common electrode (17) with electric field distorting holes (19) corresponding to recesses of the filter is formed on the filter. Another substrate is formed opposite to the substrate, between which liquid crystal (LC) layer is formed.

DETAILED DESCRIPTION - A liquid crystal layer (LC) including chiral dopants is arranged between a pair of substrates. The LC layer comprises LC molecules which have positive or negative dielectric anisotropy. The molecules are aligned either homeotropically, tiltedly or twistedly to the surfaces of the substrates or the molecules are aligned homogeneously to the surfaces of one substrate between the substrate and are aligned homeotropically to surface of other substrate. Gate and bus lines (1,3) crossing mutually to define pixel region are formed on respective substrates. The pixel region is divided into two portions, LC molecule in each portion is driven differentially from each other. A **thin film transistor** is positioned at the crossing area of the gate and data bus lines. Color filter layer (23) with multiple recesses for distorting electric field is formed over a **light** shielding layer (25), which is formed in second substrate. A common electrode (17) with electric field distorting holes (19) corresponding to the recess of the color filter is formed on the color filter. An alignment layer is formed on either of substrates and between the pair of substrates. A pixel electrode (13) is formed in the pixel region is connected to drain of the **thin film transistor** (**TFT**). A subsidiary electrode (15) overlapping data bus line is formed in the pixel region where the electrode (13) is not formed. The subsidiary is connected to the common electrode and the electrodes (13,15) are insulated mutually and bus lines by a passivation layer. The alignment layer formed on the either of the substrate is divided correspondingly to the pixel region. One portion of the alignment layer is either alignment treated or rubbing treated. The two divided portions of the alignment layer is either non-alignment treated of photo alignment treated, which is carried out using UV **light** and carrying out **light** irradiation at least one time. A negative uniaxial or biaxial film is formed between first substrate and polarizer and/or between second substrate and polarizer. The polarizer is formed on either of substrates. An INDEPENDENT CLAIM is also included for multidomain LCD device manufacturing method involves forming color filter layer with electric field distorting holes on **light** shielding layer, which is formed on a substrate. The color filter layer is formed by depositing photosensitive layer, which is irradiated by **light** through mask with slit for development of photosensitive layer. Dyestuff and pigment are dispersed driving formation of color filter layer.

USE - Multi-domain LCD device.

ADVANTAGE - The common electrode is formed along the surface of the color filter, and due to the electric field distorting holes of the color filter, a multi-domain effect is produced, which improves response characteristics. The electric field distorting effect is increased by holes, which stably align the LC molecules, accordingly multi-domain effect in enhanced.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional plan and elevations of multi-domain LCD device.

Gate bus lines 1,3
Electrodes 13,15

Common electrode 17
Electric field distorting holes 19
Color filter layers 23
Light shielding layers 25,27
2A, 2B, 7A/10

L11 ANSWER 12 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2000-431909 [38] WPIX
DNN N2000-322331 DNC C2000-131393
TI Contact pad for pixel array has three distinct regions with conductive layer, passivation layers and polyimide layer.
DC A85 L03 U12 W04
IN KWASNICK, R F; LIU, J; WEI, C
PA (KWAS-I) KWASNICK R F; (LIUJ-I) LIU J; (WEIC-I) WEI C
CYC 1
PI CA 2247717 A1 20000321 (200038)* EN 67p
ADT CA 2247717 A1 CA 1998-2247717 19980921
PRAI CA 1998-2247717 19980921
AB CA 2247717 A UPAB: 20000811
NOVELTY - Contact pad for pixel array has three regions (12,14,16) with continuous gate contacts (18). Two of the regions also have a continuous upper conductive layer (22) of indium **tin** oxide (ITO) over the source-drain contact region (20).
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:
1) The method of forming the contact pad. Continuous gate contact layer and a dielectric layer are formed. The dielectric layer is removed from the third region but remains around the edges. Conductive material is deposited to form source-drain on the dielectric layer. **TFT** passivation layer and **diode** passivation layer are formed over the source-drain. **TFT** and **diode** layers are removed to expose a portion of the source-drain and a preimidized polyimide layer (26) is formed with sloping side walls over the edge of the **TFT** and **diode** layer. ITO layer is formed over the **diode** layer.
2) Forming the data line of the pixel array. The following layers are formed sequentially: gate electrode, first dielectric layer, amorphous silicon, molybdenum, **aluminum**. Molybdenum is removed except for the material beneath the **aluminum** layer. A second molybdenum layer is formed.
USE - The pixel array is used for X-ray or **light** imaging or display arrays using photosensors.
ADVANTAGE - Sidewall leakage of the photodiode is minimized. The passivation layers prevent humidity related degradation of side walls.
DESCRIPTION OF DRAWING(S) - The figure shows the contact pad.
Three regions 12,14,16
Gate contact region 18
Source-drain 20
Conductor 22
Polyimide layer 26
Dwg.1/13

L11 ANSWER 13 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 2000-081561 [07] WPIX
DNN N2000-064824
TI **Thin film transistor** manufacturing method for liquid crystal panel - involves forming silicon nitride coated refractory semiconductor metal film on entire back side surface of quartz

substrate.
DC P81 U12 U14
PA (MATE) MATSUSHITA ELECTRONICS CORP
CYC 1
PI JP 11330480 A 19991130 (200007)* 6p
ADT JP 11330480 A JP 1998-136908 19980519
PRAI JP 1998-136908 19980519
AB JP 11330480 A UPAB: 20000209
NOVELTY - A refractory semiconductor metal film (12) consisting of either of **W**, Mo, Ti, **TiN**, TiW and a silicon nitride film (13) are formed on the entire backside surface of a quartz substrate (1). On substrate surface, a polysilicon activity layer (2), gate insulating film (3), gate electrode (4), retention volume electrode (5), insulation films, signal wiring layer, shading film and pixel electrodes are formed.
USE - For liquid crystal panels.
ADVANTAGE - As silicon nitride coated refractory metal film is formed on the entire backside surface of the quartz substrate, the quartz substrate is detected even if sensor of transparency type and optical reflection type is used. As the substrate is coated by silicon nitride film, the contamination of the production line by the refractory metal can be prevented and hence high shading property and low **light** reflection property are achieved. DESCRIPTION OF DRAWING(S) - The figure shows the sectional view of manufacturing method of **thin film transistor**. (1) Quartz substrate; (2) Polysilicon activity layer; (3) Gate insulating film; (4) Gate electrode; (5) Retention volume electrode; (12) Metal film; (13) Silicon nitride film. Dwg.1/3

L11 ANSWER 14 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 1999-242070 [20] WPIX
DNN N2001-054162 DNC C2001-020134
TI Fabrication of liquid crystal display devices involves utilizing an anodizing transparent layer and a non-anodizing opaque layer respectively as an insulating and a **light** shielding layer to prevent damage to a gate insulating layer.
DC L03 P81 U11 U12 U14
IN LYU, G; RYOO, G H; LYU, K H
PA (GLDS) LG PHILIPS LCD CO LTD; (GLDS) LG ELECTRONICS INC
CYC 2
PI KR 98016027 A 19980525 (199920)*
US 6160598 A 20001212 (200109)B 8p
KR 241721 B1 20000201 (200118)
ADT KR 98016027 A KR 1996-35533 19960826; US 6160598 A US 1997-855358 19970513; KR 241721 B1 KR 1996-35533 19960826
PRAI KR 1996-35533 19960826
AB US 6160598 A UPAB: 20010213 ABEQ treated as Basic
NOVELTY - A liquid crystal display is fabricated by forming a **light** shielding opaque metal layer and an anodizing transparent insulating layer on a substrate through anodizing a portion of a metal layer to prevent damage to a gate insulating layer caused by the **light** shielding layer.
DETAILED DESCRIPTION - Fabrication of a liquid crystal display device comprises:
(a) forming a transparent electrode (119) on a substrate (110);
(b) forming an anodizing layer (125a) and a non-anodizing layer (125b) on the transparent electrode;
(c) forming an insulating layer (120) on the anodizing layer and the

non-anodizing layer;
(d) forming a **thin film transistor** over the non-anodizing layer;
(e) forming a passivation layer (118) over the transistor and the gate insulating layer (116); and
(f) forming a pixel electrode (109) in a pixel region on the passivation layer.
An INDEPENDENT CLAIM is also included for a liquid crystal display device.
USE - The method is used for fabricating a liquid crystal display device.
ADVANTAGE - Since the anodizing layer and the non-anodizing layer are formed in a continuous layer with the same thickness, the step of the **light** shielding layer is not generated. Thus, the gate insulating layer is not damaged, the pixel electrode and the gate electrode are not short circuited, and the yield is improved.
DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of a liquid crystal display device.
Pixel electrode 109
Substrate 110
Gate insulating layer 116
Passivation layer 118
Transparent electrode 119
Insulating layer 120
Anodizing layer 125a
Non-anodizing layer 125b
Dwg.3/5

AB KR 98016027 A UPAB: 20010220
NOVELTY - A liquid crystal display is fabricated by forming a **light** shielding opaque metal layer and an anodizing transparent insulating layer on a substrate through anodizing a portion of a metal layer to prevent damage to a gate insulating layer caused by the **light** shielding layer.
DETAILED DESCRIPTION - Fabrication of a liquid crystal display device comprises:
(a) forming a transparent electrode (119) on a substrate (110);
(b) forming an anodizing layer (125a) and a non-anodizing layer (125b) on the transparent electrode;
(c) forming an insulating layer (120) on the anodizing layer and the non-anodizing layer;
(d) forming a **thin film transistor** over the non-anodizing layer;
(e) forming a passivation layer (118) over the transistor and the gate insulating layer (116); and
(f) forming a pixel electrode (109) in a pixel region on the passivation layer.
An INDEPENDENT CLAIM is also included for a liquid crystal display device.
USE - The method is used for fabricating a liquid crystal display device.
ADVANTAGE - Since the anodizing layer and the non-anodizing layer are formed in a continuous layer with the same thickness, the step of the **light** shielding layer is not generated. Thus, the gate insulating layer is not damaged, the pixel electrode and the gate electrode are not short circuited, and the yield is improved.
DESCRIPTION OF DRAWING(S) - The figure shows a sectional view of a liquid crystal display device.

Pixel electrode 109
Substrate 110
Gate insulating layer 116
Passivation layer 118
Transparent electrode 119
Insulating layer 120
Anodizing layer 125a
Non-anodizing layer 125b
Dwg.3/5

L11 ANSWER 15 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 1999-179419 [15] WPIX
DNN N2000-081883 DNC C2000-032117
TI Shorting bars for **thin film transistor** -liquid crystal display (**TFT**-LCD).
DC L03 P81 S01 S02 U11 U14
IN LIM, B; LIM, B H
PA (GLDS) LG PHILIPS LCD CO LTD; (GLDS) LG ELECTRONICS INC
CYC 2
PI KR 98010531 A 19980430 (199915)*
US 6005647 A 19991221 (200010)B 13p
KR 232177 B1 19991201 (200111)
ADT KR 98010531 A KR 1996-29587 19960722; US 6005647 A US 1997-823692 19970325; KR 232177 B1 KR 1996-29587 19960722
PRAI KR 1996-29587 19960722
AB US 6005647 A UPAB: 20000228 ABEQ treated as Basic
NOVELTY - Shorting bars having similar resistance values are connected to the alternating odd (23) and even gate lines (24) of a liquid crystal display. A first shorting bar (20) is connected to the odd lines while the second (21a) and third shorting bars (21b) are connected to the even lines. Cutting regions (25) are also connected to the even lines, to separate the even lines.

DETAILED DESCRIPTION - Preferred Display: The odd and even lines have pad regions. The pad region, and second and third shorting bars also include chrome. The first shorting bar is an **aluminum**. The insulating layer of the display is silicon nitride and the conductive layer is indium **tin** oxide (ITO).

An INDEPENDENT CLAIM is also included for a method of forming a liquid crystal display.

USE - Shorting bars are used in testing for poor panels and the electrical characteristics of a **light** crystal display (LCD).

ADVANTAGE - Using the shorting bars of this invention, the electrical characteristics of the LCD picture is uniformly carried out. As a result, defective panels can be accurately identified, and yield can be improved.

DESCRIPTION OF DRAWING(S) - The figure shows a plan view of a shorting bar of a **TFT**-LCD according to this invention.

First shorting bar 20
Second Shorting bar 21a
Third shorting bar 21b
Odd gate lines 23
Even gate lines 24
Cutting regions 25
Dwg.4/7
AB KR 98010531 A UPAB: 20000301
NOVELTY - Shorting bars having similar resistance values are connected to the alternating odd (23) and even gate lines (24) of a liquid crystal display. A first shorting bar (20) is connected to the odd lines while the

second (21a) and third shorting bars (21b) are connected to the even lines. Cutting regions (25) are also connected to the even lines, to separate the even lines.

DETAILED DESCRIPTION - Preferred Display: The odd and even lines have pad regions. The pad region, and second and third shorting bars also include chrome. The first shorting bar is an **aluminum**. The insulating layer of the display is silicon nitride and the conductive layer is indium **tin** oxide (ITO).

An INDEPENDENT CLAIM is also included for a method of forming a liquid crystal display.

USE - Shorting bars are used in testing for poor panels and the electrical characteristics of a **light** crystal display (LCD).

ADVANTAGE - Using the shorting bars of this invention, the electrical characteristics of the LCD picture is uniformly carried out. As a result, defective panels can be accurately identified, and yield can be improved.

DESCRIPTION OF DRAWING(S) - The figure shows a plan view of a shorting bar of a **TFT**-LCD according to this invention.

First shorting bar 20
Second Shorting bar 21a
Third shorting bar 21b
Odd gate lines 23
Even gate lines 24
Cutting regions 25

Dwg.4/7

L11 ANSWER 16 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 1999-069932 [06] WPIX
DNN N1999-051227 DNC C1999-020582
TI Colour filter substrate for a liquid crystal display - with reduced sheet resistance of the common electrode and elimination of crosstalk without additional processing..
DC L03 P81 U14
IN KIM, D; KIM, J; KIM, S; LEE, J; PARK, O; PARK, W
PA (SMSU) SAMSUNG ELECTRONICS CO LTD
CYC 2
PI US 5850271 A 19981215 (199906)* 12p
KR 218498 B1 19990901 (200104)
ADT US 5850271 A US 1995-554046 19951106; KR 218498 B1 KR 1995-29698 19950912
PRAI KR 1995-29698 19950912; KR 1994-28921 19941104
AB US 5850271 A UPAB: 19990210

A colour filter substrate for a liquid crystal display comprises; (a) Transparent insulating substrate (1) with evenly spaced colour filters (2) on it. (b) Overcoat layer (3) of transparent insulating material (acrylic or polyimide resin) over the colour filters and exposed substrate. (c) Common electrode (4) of transparent conductive material (indium **tin** oxide) over the overcoat layer. (d) Black matrix (5) of opaque conductive material (chromium or **aluminium**) on the common electrode and covering each gap between adjacent spaced apart colour filters, the matrix having a width at least five times wider than the gap, and preferably a sheet resistance at most 1/10 lower than the common electrode. There is also preferably a buffer layer of 10 - 2000 Angstrom silicon nitride or inorganic material between the overcoat and black matrix layers.

USE - **Thin film transistor** liquid crystal displays.

ADVANTAGE - The method gives reduced sheet resistance of the common electrode and elimination of crosstalk without additional processing.

Light reflection rate at the panel surface is reduced by reducing the **light** reflected at the black matrix. Step coverage is improved preventing abrasion damage of the polyimide.
Dwg.5/10

L11 ANSWER 17 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 1994-151510 [18] WPIX
DNN N1994-118832 DNC C1994-069719
TI Glass plate for projection colour **TFT** LCD - mfd. by coating sol obtd. by hydrolysing organic metal cpd. onto glass plate, and forming black matrix produced by oxidn. and redn. of metal in porous film.
DC E12 L03 P81 U14
IN HASHIMOTO, T
PA (NSHA) NISSHA PRINTING KK
CYC 18
PI WO 9409394 A1 19940428 (199418)* JA 15p
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: KR US
EP 625717 A1 19941123 (199445) EN
R: DE FR GB IT NL
US 5478611 A 19951226 (199606) 4p
EP 625717 A4 19950510 (199614)
ADT WO 9409394 A1 WO 1993-JP1436 19931006; EP 625717 A1 EP 1993-922042 19931006, WO 1993-JP1436 19931006; US 5478611 A WO 1993-JP1436 19931006, US 1994-244838 19940610; EP 625717 A4 EP 1993-922042
FDT EP 625717 A1 Based on WO 9409394; US 5478611 A Based on WO 9409394
PRAI JP 1992-300324 19921012
AB WO 9409394 A UPAB: 19940622
The glass plate for liquid crystal is used with a colour filter for **TFT** liquid crystal, and **TFT** liquid crystal display. An organic metal compound expressed by a general formula: M(OR1)m(OR2)nXpTq, or a mixture thereof is isolated by hydrolysation. The sol is applied to a glass plate.

In a porous transparent activated film formed by baking the coated glass plate, there is provided a black matrix produced by oxidation and reduction of metal and having a total reflectivity of 6% or less and an optical density of 3.5 or more.

ADVANTAGE - Unnecessary **light** in areas except pixel electrodes of liquid crystal panel is completely shut off. **TFT** **light** leakage current is eliminated, and reflection of **light** at black matrix is suppressed.
Dwg.0/0

L11 ANSWER 18 OF 30 WPIX (C) 2002 THOMSON DERWENT
AN 1993-237282 [30] WPIX
DNN N1993-182271 DNC C1993-105637
TI Prepn. of substrate for active matrix liq. crystal display - involves forming transparent display electrode by laminating two ITO films of different properties.
DC L03 P81 U14
PA (OKID) OKI ELECTRIC IND CO LTD
CYC 1
PI JP 05158071 A 19930625 (199330)* 5p
JP 2685086 B2 19971203 (199802) 5p
ADT JP 05158071 A JP 1991-323500 19911209; JP 2685086 B2 JP 1991-323500 19911209
FDT JP 2685086 B2 Previous Publ. JP 05158071

PRAI JP 1991-323500 19911209
AB JP 05158071 A UPAB: 19931118
The substrate has a gate electrode, a gate insulating film an n (-) a-Si semiconductor layer, an n(+) a-Si ohmic layer, a source/drain electrode, an inter mediate layer, a transparent display electrode for display, and an a-Si **thin film transistor** array including surface protection film on a transparent insulating substrate. The transparent display electrode is prepd. by lamination of two different quality layers of ITO film.

ADVANTAGE - Good display quality, since break down of drain electrode is prevented.

In an example, A gate electrode (32) was formed on a glass substrate (32), A TaOx insulating film (33) was formed by partial anodic oxidn. of (32). A gate insulating film (34) with required island shape of n(+) a-Si and n(-) a-Si film, an island shaped semiconductor layer (35), an **Al** source electrod (36) and **Al** drain electrode (37) were laminated in this order. The unneccesary n (=) a Si layer was removed by reactive etching to form a channel layer. An intermediate insulating film (38) of a SiNx was formed on it and a contact hole formed. An electrode for display (40) was formed by lamination of a 50-300 Angstroms thick first layer of IN203+Sn02 (better transparency for back **light**) and 500-2000 Angstroms thick sec. layer of IN203+Sn02 (sputtered under introducing 02, easy for etching), then processed by conventional photo-lithography. No damage to (37) occurred, since the ITO film was etched at room temp.
Dwg.1/3

L11 ANSWER 19 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1999-330480 JAPIO
TI FABRICATION OF **THIN FILM TRANSISTOR**
IN MORITA YOSHIKIMI
PA MATSUSHITA ELECTRON CORP
PI JP 11330480 A 19991130 Heisei
AI JP 1998-136908 (JP10136908 Heisei) 19980519
PRAI JP 1998-136908 19980519
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
AB PROBLEM TO BE SOLVED: To provide a method for fabricating a **thin film transistor** on a substrate for liquid crystal substrate in which a transparent quartz substrate can be detected using any one of a **light** transmission sensor or a **light** reflection sensor.
SOLUTION: A high melting point metal film 12 (e.g. **W**, Mo, Ti, **TiN**, TiW) is formed on the rear surface of a quartz substrate 1 and coated with a silicon nitride film 13. Subsequently, a polysilicon active layer 2, a gate insulation film 3, a gate electrode 4, a retaining capacity electrode 5, a first interlayer insulation film 6, a signal wiring layer 7, a second interlayer insulation film 8, a **light** shielding film 9, a third interlayer insulation film 10, and a transparent pixel electrode 11 are formed sequentially thereon thus forming a **thin film transistor** and a pixel part. Since a film having **light** shielding properties and **light** reflecting properties is formed entirely on the rear surface of the quartz substrate 1, the transparent quartz substrate 1 can be detected using any one of a **light** transmission sensor or a **light** reflection sensor.
COPYRIGHT: (C)1999,JPO

L11 ANSWER 20 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1999-249171 JAPIO
TI ACTIVE MATRIX TYPE DISPLAY DEVICE AND MANUFACTURE THEREOF
IN OTANI HISASHI; OGATA YASUSHI
PA SEMICONDUCTOR ENERGY LAB CO LTD
PI JP 11249171 A 19990917 Heisei
AI JP 1998-62281 (JP10062281 Heisei) 19980226
PRAI JP 1998-62281 19980226
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
AB PROBLEM TO BE SOLVED: To provide a sufficient auxiliary capacitance and to raise an opening ratio by constituting the capacitance connected to a **thin film transistor** by a black mask, an inorganic layer in contact with the black mask and a picture element electrode in contact with the inorganic layer.
SOLUTION: The auxiliary capacitance 110 using the inorganic layer 105, the black mask 104 in contact with the inorganic layer 105 and the picture element electrode 109 in contact with the inorganic layer 105 is formed on an inter-layer insulation film composed of organic resin film. As the black mask 104, a valve metal or a metallic material provided with a **light** shielding property and electric conductivity is used. For instance, **Al**, Ta, Ti, Cr or **TiN** is used. Also, as the inorganic film 103, a dielectric constant is important and amorphous silicon nitride film, amorphous silicon oxide film, silicon nitride-oxide film (SiO<SB>x</SB>N<SB>y</SB>), DLC(diamond-like carbon) film, titan oxide or their laminated film is used. Also, as the picture element electrode 109, ITO which is electrically conductive film provided with the **light** shielding property is used and the liquid crystal display device of a transmission type is constituted.
COPYRIGHT: (C)1999,JPO

L11 ANSWER 21 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1996-083912 JAPIO
TI MANUFACTURE OF **THIN FILM TRANSISTOR**
IN OOKUBO NORITOSHI
PA SONY CORP
PI JP 08083912 A 19960326 Heisei
AI JP 1994-217422 (JP06217422 Heisei) 19940912
PRAI JP 1994-217422 19940912
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1996
AB PURPOSE: To prevent the decrease of the **light** transmissivity of a transparent conductive film and the unevenness of the transmissivity by composing a predetermined atmosphere of nitrogen gas or mixed gas containing the nitrogen gas and trace amount of hydrogen gas.
CONSTITUTION: A transparent conductive film of the exposed state made of **tin** oxide, indium oxide, etc., connected with the electrode of each **thin film transistor** and an insulating board formed of metal electrode made of **aluminum**, etc., are heat-eated at a predetermined atmosphere, for example, at about 350°C or higher, the film is recovered from sputter damage, sintered, and hydrogenated to recover the fault of the transistor. The predetermined atmosphere uses mixed gas which contains, nitrogen gas, gas (e.g., the air) containing the nitrogen gas, and trace amount or about 0.1-0.2wt.% of hydrogen gas. Thus, the decrease in the **light** transmissivity of the film and the unevenness of the transmissivity can be prevented.
COPYRIGHT: (C)1996,JPO

L11 ANSWER 22 OF 30 JAPIO COPYRIGHT 2002 JPO

AN 1995-175039 JAPIO
TI DISPLAY DEVICE AND DRIVING METHOD FOR LIQUID CRYSTAL ELEMENT
IN WAKITA HISAHIDE
PA MATSUSHITA ELECTRIC IND CO LTD
PI JP 07175039 A 19950714 Heisei
AI JP 1993-322392 (JP05322392 Heisei) 19931221
PRAI JP 1993-322392 19931221
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1995
AB PURPOSE: To make a display device possible to display a bright display at a high aperture rate by impressing voltages lager **tan** the response saturation voltages of liquid crystals on pixel electrodes and putting the macromolecule dispersion type liquid crystals outside the pixel electrodes to a transparent state.
CONSTITUTION: A **TFT**(**thin-film transistor**) in a liquid crystal panel inputs a strobe signal to a gate line 9 of the **TFT** from a strobe pulse generating circuit 10. The signal voltage corresponding to an image signal is pressed to the source of the TFs from a signal voltage generating circuit 11. **Light** is absorbed by a coloring matter bringing a dark state when the voltage is no impressed. The **light** is reflected by the **aluminum** thin film on the rear surface and the bright state is brought about when the liquid crystal layer is made transparent by the voltage impression. A need for making correction according to the level of the voltages impressed to the adjacent pixels arises in the case of making response with the sufficient voltage in the regions exclusive of the pixels. The gradation level corrected by the numerical value obtd. by multiplying the gradation level of the adjacent pixel by a negative constant is sent on the basis of the gradation signal of the certain pixel. The max. value of the driving voltage is set at the level at which the region exclusive of the pixels responds.

L11 ANSWER 23 OF 30 JAPIO
AN 1993-241189 JAPIO
TI LIQUID CRYSTAL DISPLAY BODY
IN OKAMOTO NORIHISA
PA KOUDO EIZOU GIJUTSU KENKYUSHO:KK
PI JP 05241189 A 19930921 Heisei
AI JP 1992-43798 (JP04043798 Heisei) 19920228
PRAI JP 1992-43798 19920228
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1993
AB PURPOSE: To obtain an excellent display effect even if there are defects in respective picture element units by locally covering the surfaces of display electrodes facing display picture element electrodes to be bright point defects with **light**-shieldable thin films, by which the bright point defects can be changed to black point defects.
CONSTITUTION: Si gates 301, **Al** source lines 302 and transparent picture element electrodes 303 consisting of ITO(Indium **Tin** Oxide) are formed on a quartz substrate 305. A **light** shielding layer 104 consisting of Co is formed on the transparent electrodes 103 of a counter substrate 102 corresponding to the picture elements having defectively operating **TFTs** 101 at about 3000Å thickness so as to have spacial overlap parts 106 on the conventional **light** shielding parts 105. The **light** transmitted through the defective picture element parts is shielded even if the **TFTs** fail to operate and the writing of charges is not executed. The bright point defects are thus corrected to the black point defects. The greater part of

the defective picture elements are detected by using a system of optically comparing the abnormality of the patterns, such as etching defect by the dust, nap, etc., at the defective points among the adjacent picture elements.

L11 ANSWER 24 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1992-162671 JAPIO
TI IMAGE SENSOR AND MANUFACTURE THEREOF
IN MIYAKE HIROYUKI
PA FUJI XEROX CO LTD
PI JP 04162671 A 19920608 Heisei
AI JP 1990-287150 (JP02287150 Heisei) 19901026
PRAI JP 1990-287150 19901026
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1992
AB PURPOSE: To enable area occupied by a **thin-film transistor** and a **diode** on a substrate to be reduced by forming a semiconductor activation layer on a gate electrode of a **thin-film transistor** switching element through an insulation layer and at the same time forming a source electrode and a drain electrode, and then forming a photoconductive layer of a photodetector and a transparent electrode with the drain electrode as a common electrode with a metal electrode of the photodetector.
CONSTITUTION: A photo **diode** of a photodetector has a metal electrode 52 where a Cr3 layer of a drain electrode 61 of a **thin -film transistor**(**TFT**) is an individual electrode and is a photodetector of sandwich type where a photoconductive layer 53 in individual i-a-Si layer is laminated on it and a transparent electrode 54 of indium **tin** oxide which is formed as an individual electrode is laminated on it is sequently. Then, the drain electrode 61 of **TFT** and the metal electrode 52 become a common electrode, they contact a fourth- metal **aluminum** layer 60 from the transparent electrode 54 of ITO, and a common bias voltage VB is applied to it, thus enabling an area of a photodetector part on the substrate and **thin-film transistor** switching element part to be reduced.

L11 ANSWER 25 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1991-203245 JAPIO
TI **THIN FILM TRANSISTOR** ARRAY
IN TSUNOHASHI TAKESHI; GOTO KAZUHITO; NAMIKAWA AKIRA; TATSUMI MOTOSHIGE
PA NITTO DENKO CORP
PI JP 03203245 A 19910904 Heisei
AI JP 1989-343763 (JP01343763 Heisei) 19891228
PRAI JP 1989-343763 19891228
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991
AB PURPOSE: To make it possible to obtain a liquid crystal display panel which has a recessed display surface and reduces reflected **light** toward the user by using a specific board and combining liquid crystal with a transparent conductive film on the rear side.
CONSTITUTION: At least a thin film 3 is formed on one side of a transparent polymer film-made substrate 2 selected out of SiO<SB>x</SB> (x: 1 to 2), ZrO<SB>2</SB>, **Al**<SB>2</SB>O<SB>3</SB>, SiC, TiC, SiN and **TiN**. A **thin film transistor** array 1 which comprises a gate electrode 4, a gate insulation film 5, a semiconductor layer 6 and source drain electrodes 7 and 8, is formed on

the side where the thin film 3 is formed or on the side opposite to the thin film 3. This construction makes it possible to manufacture a liquid crystal display panel whose display surface is properly curved and hence to reduce reflected **light**.

L11 ANSWER 26 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1991-050731 JAPIO
TI THIN FILM SEMICONDUCTOR DEVICE
IN KANEKO YOSHIYUKI; TSUTSUI KEN; KOIKE NORIO; TSUKADA TOSHIHISA
PA HITACHI LTD
PI JP 03050731 A 19910305 Heisei
AI JP 1989-184631 (JP01184631 Heisei) 19890719
PRAI JP 1989-184631 19890719
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991
AB PURPOSE: To relieve defects by constituting dual line wiring at the intersecting part of a gate bus and a data bus of a **TFT** gate array, and eliminating a part of the dual line wiring, when the short between the wirings generates.
CONSTITUTION: On a **light** transparent insulating substrate 10, Cr metal is selectively stuck and formed as a gate electrode and gate buses 1, 1'. By plasma discharge, silicon nitride 11 is deposited as a gate insulating film and an interlayer insulating film on the whole surface. By plasma discharge, an amorphous silicon layer is deposited as an amorphous semiconductor layer 2, and further N-type amorphous silicon 3 is deposited. After the amorphous silicon (the N-type layer also is contained) 2, 3 are etched in a desired pattern, a source electrode 4, a drain electrode 5 and data buses 5' are formed by using Cr, **Al**, etc., and the N-type amorphous silicon is etched by using the pattern as a mask. A transparent electrode is selectively stuck by using indium **tin** oxide, and a protecting film 7 is stuck on the almost whole surface by using silicon nitide and the like. Hence a semiconductor device can be relieved from the generation of defects caused by short circuiting by cutting a part of the dual line.

L11 ANSWER 27 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1989-106467 JAPIO
TI IMAGE SENSOR
IN KUWANO YUKINORI; MORI NORIAKI; NAKANO SHOICHI; NOGUCHI SHIGERU; WATANABE KANEO; UEHARA HISAO; KOBAYASHI MITSUGI
PA SANYO ELECTRIC CO LTD
PI JP 01106467 A 19890424 Heisei
AI JP 1987-264380 (JP62264380 Showa) 19871020
PRAI JP 1987-264380 19871020
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1989
AB PURPOSE: To simplify a manufacture process and reduce a cost by a method wherein an image read part composed of an optoelectric transducer and a display function of read images are provided in one substrate and the same semiconductor material and conductive material are employed for both the optoelectric transducer and the active element of the display function.
CONSTITUTION: A thin film 7 of semiconductor material such as amorphous semiconductor whose main component is Si is sandwiched between a transparent electrode 8 made of indium oxide, **tin** oxide or the like and an electrode 9 made of metal such as **Al**, Ti, Cr, Ni, Ag or Au to form an example of an image read part 3. On the other hand, an image display part may be, for instance, a liquid crystal display of an

active matrix driven by an active element 10 employing a **thin film transistor**. When the **thin film transistor** is employed, the material of the transparent electrode 12 of the picture element is the same as the material of the transparent electrode 8 of the image reading part 3, the material of the semiconductor layer 11 of the **thin film transistor** is the same as the material of the thin semiconductor film 7 of the image read part 3 and, further, the material of source and drain electrodes 13 and 14 is the same as the material of the **light** shielding electrode 9. With this constitution, as the same material can be applied in the same process, the manufacturing process can be simplified and the cost can be reduced.
COPYRIGHT: (C)1989,JPO&Japio

L11 ANSWER 28 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1986-084863 JAPIO
TI IMAGE SENSOR
IN OKUMURA FUJIO
PA NEC CORP
PI JP 61084863 A 19860430 Showa
AI JP 1984-207455 (JP59207455 Showa) 19841003
PRAI JP 1984-207455 19841003
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1986
AB PURPOSE: To obtain the titled device capable of the increase in density by a method wherein a **thin film transistor** has a source electrode of a clear conductive film and a drain electrode with an ohmic contact layer of n type amorphous Si, and is composed of a gate insulation film and a gate electrode on an i type amorphous Si formed at the same time with a pin photo **diode**.
CONSTITUTION: Cr turning to a common electrode 2 is evaporated on a glass substrate 1 and patterned in band form. Next, a p-a-Si:H3, an i-a-Si:H4, and an n type amorphous Si 5 are successively formed thereon. Then, each basic element is isolated in island form by etching. The upper surfaces of the n-a-Si:H and the i-a-Si:H at the channel part of the **thin film transistor** are removed. An SiN<SB>x</SB> gate insulation film 6 serving as the passivation for the whole is formed, and a window for a pin photo **diode** serving as the source electrode and a window for the drain electrode are opened. **Al** turning to the gate elec trode 7 and the drain electrode 8 is evaporated and each patterned into a desired shape. Finally, a clear conductive film 9 of indium **tin** oxide or the like is evapo rated.
COPYRIGHT: (C)1986,JPO&Japio

L11 ANSWER 29 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1985-124975 JAPIO
TI **THIN FILM TRANSISTOR**
IN MATSUDA AKIHISA; TANAKA HIDEO
PA AGENCY OF IND SCIENCE & TECHNOL
SEIKO INSTR & ELECTRONICS LTD
PI JP 60124975 A 19850704 Showa
AI JP 1983-234728 (JP58234728 Showa) 19831212
PRAI JP 1983-234728 19831212
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1985
AB PURPOSE: To prevent the deterioration of electric characteristics even under incidence of external **light** by a method wherein a **light** shielding film made of amorphous Si containing at least a layer of **tin** is provided on a semiconductor film made of

hydrogenated amorphous Si or the like.
CONSTITUTION: A gate electrode 11 made of a metal such as **Al** or Cr is provided on an insulating substrate 10 composed of glass, etc., and a gate insulation film 12 made of SiO<SB>2</SB> or the like is installed so as to cover the electrode 11. The semiconductor film 13 made of hydrogenated amorphous Si or the like containing Si is provided on this film 12, and the source electrode 14 and the drain electrode 15 composed of a metal such as **Al** or Cr are formed over the film 13 at an interval. Further, the **light** shielding film 16 made of amorphous Si containing at least a layer of **tin** and an insulation film 17 made of SiO<SB>2</SB> or the like are placed on the film 13.

L11 ANSWER 30 OF 30 JAPIO COPYRIGHT 2002 JPO
AN 1983-074078 JAPIO
TI DEVICE APPLIED BY THIN FILM SEMICONDUCTOR
IN SAITO TAMIO
PA TOSHIBA CORP
PI JP 58074078 A 19830504 Showa
AI JP 1981-173270 (JP56173270 Showa) 19811029
PRAI JP 1981-173270 19811029
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1983
AB PURPOSE: To prevent the leak of accumulation charges through a transistor, by providing an opaque film on a semiconductor layer, when charging thin film capacity via a **thin film transistor**.
CONSTITUTION: On a glass substrate 1, a CdSe layer 2, a Ta<SB>2</SB>O<SB>5</SB> gate film 3, a **TaN**<SB>x</SB>O<SB>1-x</SB> gate electrode 4 and a source electrode 5, drain electrode 6 constituted of the laminated film of Cr 7, Au 8 and In 9 are laid. The opaque **Al**<SB>2</SB>O<SB>3</SB> film 10 is formed on the layer 2. Or it is also available to cover a protection film with an opaque film 11. In this constitution, even when a **light** is positively irradiated resulting in the increase of the liquid crystal surface contrast, the **light** is not incident into the layer 2, the **light** acts on the **thin film transistor**, accordingly the accumulation charges of thin film capacity do not leak. Therefore, since the voltage applied on the liquid crystal display element LC is kept constant without decreasing during display, a good picture quality without the variation of the display contrast can be obtained.

L20 ANSWER 1 OF 4 WPIX (C) 2002 THOMSON DERWENT
AN 1998-310096 [27] WPIX
DNN N1998-243074 DNC C1998-095438
TI Self align patterning method.
DC A85 L03 U11 U14
PA (IBMC) INT BUSINESS MACHINES CORP
CYC 1
PI RD 409091 A 19980510 (199827)* 1p
ADT RD 409091 A RD 1998-409091 19980420
PRAI RD 1998-409091 19980420
AB RD 409091 A UPAB: 19980709
Disclosed is a method to make transparent electrode of **TFT**-LCD (**Thin Film Transistor**-Liquid Crystal Display) array using UV (Ultraviolet) exposure from the backside of the substrate to negative resist. Photo mask is used to conceal the peripheral blank space. As this method enables the very precise alignment of transparent electrode to the data line and to the gate line, wide aperture ratio can be obtained. As the peripheral area is not exposed because of the photo mask, extra step to remove peripheral area is not exposed because of the photo mask, extra step to remove peripheral space can be reduced. Fig. 1 shows the back-side exposure using photo mask to make pixel electrode image of negative resist. As peripheral area is not exposed to UV **light**, no additional photo process to remove peripheral spacing area is not needed. ITO (Indium **Tin** Oxide) near the **TFT** that causes lateral field to make disclination line can also be removed using photo mask. Fig. 2 shows the self alignment method to make ITO pattern. After making **TFT** and data line, insulator is deposited. Said insulator is made of **silicon nitride**, silicon oxide, SOG (Spin on Glass) film, carbon, germanium compound, polyimide, polymer or the coloured polymer. ITO (or other transparent metal) is deposited by sputtering and then negative resist is coated by spin coater. UV **Light** is exposed from the back side (Fig.2-1) and negative resist is cross-linked after baking. After developing in the developer rinse (Fig.2-2), ITO etching is performed. Stripping the photo resist (Fig.2-3), ITO electrode is created. As the overlap between ITO and data line is small and uniform, data line can be narrow and wide aperture ratio can be obtained. This technique is used for the LCD (Liquid Crystal Display) devices.
Dwg.0/0

L20 ANSWER 2 OF 4 JAPIO COPYRIGHT 2002 JPO
AN 2000-066180 JAPIO
TI LIQUID CRYSTAL DISPLAY DEVICE
IN OTSUKI HIDEYO; KAWATO TOMIO; SHINOHARA HIROSHI
PA MITSUBISHI ELECTRIC CORP
PI JP 2000066180 A 20000303 Heisei
AI JP 1998-237556 (JP10237556 Heisei) 19980824
PRAI JP 1998-237556 19980824
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000
AB PROBLEM TO BE SOLVED: To suppress **light** leakage caused by total reflection at edges of a color filter substrate visually recognized in the case a liquid crystal display device is viewed from an oblique direction. SOLUTION: Black matrices 4 are formed starting from a position at a distance a (a<tg1.**tan**.**sin**-1 (n0/n1)) away from an edge of a color filter substrate 2 toward a displaying region, where the thickness of the color filter substrate 2 is tg1, a refractive index

thereof is n1, the thickness of a **TFT**(**thin film transistor**) array substrate 3 is tg2, a refractive index thereof is n2 and the refractive index of air is n0. A **light** shielding tape 10 is provided from the edge of the color filter substrate 2 to a position at a distance L1 (L1>=tg2.**tan**.**sin**-1 (n0/n2)+2) therefrom. In this case, **sin**-1 (n0/n2) (θ2 in figure) is an angle formed by an incident **light** on a liquid crystal panel 1 with 90° and the normal to the panel in the **TFT** substrate 3. Besides the **light** shielding tape 10 can be stuck either on the **TFT** array substrate 3 or on a planar **light emitting** body 7.
COPYRIGHT: (C)2000,JPO

L20 ANSWER 3 OF 4 JAPIO COPYRIGHT 2002 JPO
AN 1998-039334 JAPIO
TI ARRAY SUBSTRATE AND LIQUID CRYSTAL DISPLAY DEVICE
IN NAKAMURA KENJIRO; FUKUDA KAICHI
PA TOSHIBA CORP
PI JP 10039334 A 19980213 Heisei
AI JP 1996-195012 (JP08195012 Heisei) 19960724
PRAI JP 1996-195012 19960724
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1998
AB PROBLEM TO BE SOLVED: To provide a liquid crystal display device with which the crack and peeling of pixel electrodes are prevented and the operation defect of the pixel electrodes by the influence of impurities and the influence of interference of **light** are prevented.
SOLUTION: **Silicon nitride** films 15 are formed on **thin-film transistors**(**TFTs**) 14 and acrylic resin films 16 which are org. insulating films are formed thereon. Contact holes 17 are formed at the acrylic resin films 16 and **silicon oxynitride** films 18 are formed on the acrylic resin films 16 including the inner peripheral surfaces of the contact holes 17. The pixel electrodes 19 are electrically connected to the drain electrodes 5 of the **TFTs** 14 via the surfaces of the **silicon oxynitride** films 18 on the surfaces of the contact holes 17, by which an active matrix substrate 20 is formed. The conduction of the impurities, metal ions and water in the org. films is good and the operation defect of the pixel electrodes is affected with the silicon oxide films. The refractive indices between the polyimide resin films which are the org. insulating films and the pixel electrodes of ITO (indium **tin** oxide) vary too mush with the **silicon nitride** film that the interference of **light** occurs. These defects are prevented by the formation of the **silicon oxynitride** films.
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L20 ANSWER 4 OF 4 JAPIO COPYRIGHT 2002 JPO
AN 1989-291219 JAPIO
TI ACTIVE MATRIX SUBSTRATE
IN KONDO YOICHI; KATAYAMA MIKIO; TANAKA HIROHISA; MORIMOTO HIROSHI
PA SHARP CORP
PI JP 01291219 A 19891122 Heisei
AI JP 1988-121559 (JP63121559 Showa) 19880518
PRAI JP 1988-121559 19880518
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1989
AB PURPOSE: To facilitate production and to improve economy by constituting capacitors for charge holding of picture element electrodes of metallic

films constituting black stripes.
CONSTITUTION: The many rectangular picture element electrodes 13 formed of, for example, the ITO (Indium-**Tin**-Oxide) films are disposed to a matrix shape on a transparent insulating glass substrate 11 and **thin-film transistors** (**TFT**) 12 connected electrically to the respective picture element electrodes 13 are disposed near one corner of the electrodes 13. The **TFTs** 12 and the electrodes 13 and further, the gate insulating film 12b parts where the **TFTs** 12 and the electrodes 13 are not laminated are covered with the insulating film 16 consisting of an **SiN**<SB>x</SB> film and a non-**light** transparent metallic film 17 formed with apertures 17a to prevent covering of only the parts exclusive of the peripheral part of the electrodes 13 is laminated on the insulating film 16. The production is thereby facilitated and the degradation in the working efficiency at the time of producing the liquid crystal display device is obviated.

L21 ANSWER 1 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2002-393639 [42] WPIX
DNN N2002-308656 DNC C2002-110650
TI Solid state electrochemical **light-emitting** device for display, screen, comprises solid layer comprising non-polymeric metal complex distributed in polymer matrix, and electrodes in contact with surfaces of solid layer.
DC A85 E12 L03 P85 U11 U12 U14
IN RUBNER, M F; RUDMANN, H
PA (RUBN-I) RUBNER M F; (RUDM-I) RUDMANN H; (MASI) MASSACHUSETTS INST TECHNOLOGY
CYC 96
PI WO 2002015294 A2 20020221 (200242)* EN 37p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
US 2002047551 A1 20020425 (200242) <--
AU 2001085437 A 20020225 (200245)
ADT WO 2002015294 A2 WO 2001-US41717 20010814; US 2002047551 A1 Provisional US 2000-225589P 20000816, US 2001-928515 20010814; AU 2001085437 A AU 2001-85437 20010814
FDT AU 2001085437 A Based on WO 200215294
PRAI US 2000-225589P 20000816; US 2001-928515 20010814
AB WO 200215294 A UPAB: 20020704
NOVELTY - Solid state electrochemical **light-emitting** device comprises a solid layer containing first surface (42) and second surface (44), first electrode (20) in contact with surface (42) and a second electrode (30) in contact with surface (44). The solid layer is comprised of non-polymeric metal complex distributed in a polymer matrix.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) solid state **light-emitting** circuit comprising the solid state electrochemical **light-emitting** device and a driver comprising an AC voltage waveform generator configured to apply an AC voltage waveform across first electrode and the second electrode, whereby the solid state **light emitting** device emits **light**;

(ii) method of generating **light** which comprises applying **light** generating potential across the first and second electrodes of the device and generating **light** from the device; and

(iii) manufacture of solid state electrochemical **light-emitting** device which comprises depositing the solid layer onto the first electrode and placing a second electrode onto the solid layer.

USE - For displays e.g. flat-panel displays, screens e.g. computer screens and other items that require illumination.

ADVANTAGE - The solid state electro-chemical **light-emitting** device has high luminance, high external efficiency, long half-life and a low operating voltage.

DESCRIPTION OF DRAWING(S) - The figure shows the solid state electrochemical **light-emitting** device.

Solid state electrochemical **light-emitting** device
10
Electrodes 20,30

Solid layer 40
Surfaces of solid layer 42,44
Dwg.1/13

L21 ANSWER 2 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2001-283403 [30] WPIX
DNN N2001-202022
TI **Light emitting diode** with organic **light emitting** polymer generating output having mix of colors.
DC P85 T04 U12 U14
IN REISINGER, A; RUPP, C
PA (MANS) MANNESMANN VDO AG
CYC 25
PI EP 1045462 A2 20001018 (200130)* DE 10p
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
DE 19916745 A1 20001019 (200130)
ADT EP 1045462 A2 EP 2000-103932 20000225; DE 19916745 A1 DE 1999-19916745 19990413
PRAI DE 1999-19916745 19990413
AB EP 1045462 A UPAB: 20010603
NOVELTY - The **light emitting diode** has a glass plate (1) onto which is formed a transparent layer of Indium-**tin**-oxide (2). A second layer (4) is separated by a **light emitting** polymer layer (3) that is set into a bonded frame (6) that provides an air and water tight structure. The polymer has a strip structure with different colors.
USE - Flat display element
ADVANTAGE - Multi colors
DESCRIPTION OF DRAWING(S) - Cross section
Glass plate 1
Transparent layers 2,4
Polymer layer 3
Bonded frame 6
Dwg.1/5

L21 ANSWER 3 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2001-073036 [09] WPIX
DNN N2001-055459 DNC C2001-020720
TI Optical device e.g., optical filter comprises a working electrode, a counter electrode, a lead electrode, an electrolyte in contact with the electrode and an insulation layer formed on the lead electrode.
DC A11 A28 A89 L03 P81 P85 U13 U14 V07 W04
IN KIHIRA, T; SEKIYA, M; UDAKA, T
PA (SONY) SONY CORP
CYC 26
PI EP 1055961 A2 20001129 (200109)* EN 123p
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 2000338528 A 20001208 (200113) 17p
JP 2001051308 A 20010223 (200115) 34p
JP 2001005039 A 20010112 (200118) 18p
JP 2001059979 A 20010306 (200118) 14p
JP 2001059980 A 20010306 (200118) 15p
JP 2001013530 A 20010119 (200120) 18p
JP 2001013531 A 20010119 (200120) 17p

ADT EP 1055961 A2 EP 2000-111283 20000525; JP 2000338528 A JP 1999-151467 19990531; JP 2001051308 A JP 2000-122945 20000424; JP 2001005039 A JP 1999-171157 19990617; JP 2001059979 A JP 2000-174599 20000612; JP 2001059980 A JP 2000-174600 20000612; JP 2001013530 A JP 1999-187317 19990701; JP 2001013531 A JP 1999-187318 19990701

PRAI JP 2000-122945 20000424; JP 1999-150227 19990528; JP 1999-151467 19990531; JP 1999-170670 19990617; JP 1999-171157 19990617; JP 1999-171158 19990617; JP 1999-187317 19990701; JP 1999-187318 19990701

AB EP 1055961 A UPAB: 20010213

NOVELTY - An optical device comprises: a working electrode; a counter electrode; a lead electrode on the electrode; and an electrolyte in contact with the electrode. An insulation layer is formed on the lead electrode.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) an electrode formed of an oxide layer, in which indium is doped to **tin** and indium/**tin** is 1,5 or less by the element ratio;

(b) an optical device comprising an electrode which is formed of a laminate having an oxide layer in which indium is doped to **tin** and a **tin** oxide layer;

(c) an optical device comprising: a working electrode; a counter electrode and an electrolyte placed in contact with both electrodes. The counter electrode has a first layer including conductive particles, a second layer including a polymer layer and a third layer including a current collector;

(d) an optical device comprising: a working electrode; a counter electrode; an electrolyte placed in contact with both electrodes and a control device controlling the driving current to the electrodes. The driving current is controlled in accordance with temperature;

(e) an optical device comprising: a working electrode; a counter electrode; an electrolyte placed in contact with both electrodes and a current supply connected to the working electrode. The current supply supplies a current for supplementing a dissolved portion of electrodeposited material after electrodeposition of the material from the electrolyte on the working electrode;

(f) an optical device comprising: a working electrode; a counter electrode; an electrolyte placed in contact with both electrodes and a polarization device connected with the working electrode. The polarization device polarizes the working electrode to an oxidation direction before electrodeposition of a material from the electrolyte on the working electrode; and

(g) a camera system comprising an optical device in an optical path. The optical device has a working electrode, a counter electrode, an electrolyte in contact with both electrodes, a device for controlling a driving current and a device for polarizing the working electrode to an oxidation direction before electrodeposition of the material on the working electrode.

USE - The optical device is suitable for a display apparatus for conducting display of numericals or characters or X-Y matrix display and as an optical filter for controlling **light** transmissivity and reflectivity in a visible **light** region.

ADVANTAGE - The device has improved response speed and **light** shielding characteristics.

Dwg.0/48

L21 ANSWER 4 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2000-637483 [61] WPIX
DNN N2000-472771 DNC C2000-191670
TI Front plate production for plasma display panel, comprises use of backside exposure process and appropriate processing sequence rearrangement to reduce number of photomasks required.
DC L03 V05
IN LU, J; SU, Y; SUNG, W
PA (ACER-N) ACER DISPLAY TECHNOLOGY INC
CYC 2
PI US 6113449 A 20000905 (200061)* 12p
TW 394915 A 20000621 (200109) <--
ADT US 6113449 A US 1999-351969 19990712; TW 394915 A TW 1998-111339 19980713
PRAI TW 1998-111339 19980713
AB US 6113449 A UPAB: 20001128
NOVELTY - Production of a front plate for a plasma display panel (PDP) comprises using a backside exposure process and an appropriate processing sequence rearrangement to reduce the number of photomasks required.
DETAILED DESCRIPTION - Production of a front plate for a PDP comprises:
(i) forming a **light**-shielding structure on a substrate by mesh printing or photolithography, the structure including a black stripe and a transparent electrode gap stopper;
(ii) forming a transparent conductive layer over the upper surfaces of the **light**-shielding structure and the substrate;
(iii) coating a first photoresist layer over the transparent conductive layer;
(iv) performing backside exposure and developing to the first photoresist layer using the **light**-shielding structure as a mask to form a first photoresist pattern to reveal a portion of the transparent conductive layer stacked over the **light**-shielding structure;
(v) removing the portion of the transparent conductive layer stacked over the **light**-shielding structure;
(vi) removing the first photoresist pattern, leaving transparent electrodes formed on the substrate, separated by the black stripe or transparent electrode gap stopper;
(vii) forming a metal layer over the transparent electrodes and the **light**-shielding structure;
(viii) coating a second photoresist layer on the metal layer;
(ix) forming a second photoresist pattern by performing another photolithography process to the second photoresist layer using a second photomask;
(x) etching the metal layer not covered by the second photoresist pattern to form a metal electrode on the corresponding transparent electrode; and
(xi) removing the second photoresist pattern.
USE - Production of flat display panel, particularly the front plate of a PDP.
ADVANTAGE - The number of photomasks required is reduced and the accuracy of the exposure and developing process is improved.
DESCRIPTION OF DRAWING(S) - The figures show cross-sectional views of the processing steps.
4D,E,G,H/4

L21 ANSWER 5 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2000-630048 [61] WPIX
DNN N2000-466986 DNC C2000-188884

TI Multi-domain liquid crystal display includes a common auxiliary electrode on the same layer as a gate electrode and an electric field inducing window in a pixel electrode.

DC A85 L03 P81 P85 U14

IN KIM, K J; LEE, Y B; YOO, J J; KIM, G J

PA (GLDS) LG PHILIPS LCD CO LTD

CYC 5

PI GB 2347779 A 20000913 (200061)* 74p
DE 10011218 A1 20000928 (200061)
FR 2790838 A1 20000915 (200061)
JP 2000284329 A 20001013 (200101) 10p
KR 2000059783 A 20001005 (200123)
GB 2347779 B 20010606 (200133)

ADT GB 2347779 A GB 2000-5610 20000308; DE 10011218 A1 DE 2000-10011218 20000309; FR 2790838 A1 FR 2000-2758 20000303; JP 2000284329 A JP 2000-65665 20000309; KR 2000059783 A KR 1999-7633 19990309; GB 2347779 B GB 2000-5610 20000308

PRAI KR 1999-7633 19990309

AB GB 2347779 A UPAB: 20001128

NOVELTY - Multi-domain liquid crystal display includes a common auxiliary electrode on the same layer as a gate electrode. The pixel region includes a pixel electrode which has an electric field inducing window in its inner part. The window provides a suitable distorted electric field to arrange the liquid crystal molecules in the desired positions.

DETAILED DESCRIPTION - Multi-domain liquid crystal display device comprises:

(a) first and second substrates facing each other;

(b) a set of gate bus lines arranged in a first direction on the first substrate and a set of data bus lines arranged in a second direction on the first substrate to define a pixel region;

(c) a common-auxiliary electrode (15) surrounding the pixel region on a same layer as the gate bus line is formed;

(d) a gate insulator layer over the first substrate;

(e) a pixel electrode (13) in the pixel region, the pixel electrode having an electric field inducing window (51) in its inner part;

(f) a **light** shielding layer on the second substrate;

(g) a color filter layer on the **light** shielding layer;

(h) a common electrode on the color filter layer;

(i) an alignment layer on at least one substrate between the first and second substrates; and

(j) a liquid crystal layer between the first and second substrates.

An INDEPENDENT CLAIM is also included for a multi-domain liquid crystal display device comprising:

(i) a data bus line to which data signal is applied;

(ii) a gate bus line crossed with the data bus line to define a pixel region;

(iii) a pixel electrode in the pixel region, the pixel electrode having an electric field inducing window in its inner part;

(iv) a common-auxiliary electrode surrounding the pixel region on a same layer as the gate bus line is formed.

USE - None given.

ADVANTAGE - The liquid crystal display has high response time characteristics and high brightness due to stable arrangement of liquid crystal molecules. Since the gate electrode and common-auxiliary electrodes are formed on the same layer, and electric field inducing layers are formed in the pixel electrode, it is easy to control the alignment directions in domains to obtain a wide viewing angle and a

multi-domain effect.
DESCRIPTION OF DRAWING(S) - The diagram shows a plan view of a multi-domain liquid crystal display device.
Pixel electrode 13
Common-auxiliary electrode 15
Electric field inducing window 51
Dielectric frame 53
Dwg.2B/12

L21 ANSWER 6 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2000-478777 [42] WPIX
DNN N2000-356902
TI **LED** array write-in head for writing-in of images in copier, printer, has reflecting mirror whose reflecting surface is inclined at specified angle for facing reverse side of **LED** array.
DC P75 T04 W02
PA (RICO) RICOH KK
CYC 1
PI JP 2000177169 A 20000627 (200042)* 5p
ADT JP 2000177169 A JP 1998-359432 19981217
PRAI JP 1998-359432 19981217
AB JP2000177169 A UPAB: 20000905
NOVELTY - A reflecting mirror (4) which has reflecting surface and **LED** array (2) are supported by a board (5). The reflecting surface of mirror is inclined at an angle of 45 deg. to the optical axis of **LED light** emission portion (21) such that the surface faces reverse side of the **LED** array. An image forming lens (3) is arranged opposing to reflecting mirror, which irradiates **light** on the lens.
DETAILED DESCRIPTION - The sum of the height (H) between the center of reflecting mirror and **LED** array and the thickness (T) of the **LED** array is made (H+T) at least F multiply **tan** theta , where F is the focal length of the lens and theta is the visual field angle of the lens.
USE - For writing-in of images in copier, printer, etc.
ADVANTAGE - By using the reflecting mirror, the irradiated **light** is effectively converged to the photoreceptor, with low loss of **light**.
DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of **LED** array write-in head.
LED array 2
Image forming lens 3
Reflecting mirror 4
Boards(21) **Light** emission portion 5
Dwg.1/5

L21 ANSWER 7 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2000-465379 [40] WPIX
CR 1999-325984 [27]; 1999-458054 [38]; 2000-610723 [52]; 2001-417505 [44]; 2002-361577 [39]
DNN N2000-347398 DNC C2000-140044
TI Electrochemical mirror for reversibly controlling the reflection of electromagnetic radiation has two electrodes, metal ions that can be electrodeposited on the electrodes, and metal atoms disposed on one of the electrodes.
DC A89 L03 P81 P85 S02 V01 V07
IN CUNNINGHAM, M A; TENCH, D M; WARREN, L F

PA (ROCW) ROCKWELL SCI CENT LLC; (ROCK-N) ROCKWELL SCI CENT LLC; (ROCW) ROCKWELL TECHNOLOGIES LLC

CYC 87

PI WO 2000036580 A1 20000622 (200040)* EN 26p <--
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
AU 9955509 A 20000703 (200046) <--
US 6166847 A 20001226 (200103)
BR 9916346 A 20011002 (200167) <--
EP 1159727 A1 20011205 (200203) EN <--
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
KR 2001086115 A 20010907 (200218)

ADT WO 2000036580 A1 WO 1999-US17990 19990809; AU 9955509 A AU 1999-55509 19990809; US 6166847 A CIP of US 1997-994412 19971219, US 1999-333385 19990615; BR 9916346 A BR 1999-16346 19990809, WO 1999-US17990 19990809; EP 1159727 A1 EP 1999-942046 19990809, WO 1999-US17990 19990809; KR 2001086115 A KR 2001-707566 20010615

FDT AU 9955509 A Based on WO 200036580; US 6166847 A CIP of US 5923456; BR 9916346 A Based on WO 200036580; EP 1159727 A1 Based on WO 200036580

PRAI US 1999-333385 19990615; WO 1998-US26610 19981215; US 1997-994412 19971219

AB WO 200036580 A UPAB: 20020704

NOVELTY - Electrochemical mirror comprises two electrodes, one of which is transparent to the radiation; a surface modification layer (108) disposed on the first electrode (106); metal ions (116) which are soluble in an electrolytic solution (112) and which can be electrodeposited on the electrodes; and metal atoms disposed on one electrode.

DETAILED DESCRIPTION - Electrochemical mirror comprises two electrodes, one of which is transparent to the radiation; a surface modification layer disposed on the first electrode; metal ions which are soluble in an electrolytic solution and which can be electrodeposited on the electrodes; and metal atoms disposed on one of the electrodes. A negative electrical potential (118) applied to the first electrode relative to the second electrode (110) tends to cause deposited metal to be dissolved from the second electrode into the solution and to be electrodeposited from the solution onto the first electrode. The surface modification layer facilitates uniform nucleation of the electrodeposited metal on the first electrode. A positive electrical potential applied to the first electrode relative to the second tends to cause deposited metal to be dissolved from the first electrode and electrodeposited from the solution onto the second electrode. The amount of deposited metal on the first electrode affects the reflectivity of the mirror for the radiation.

USE - For reversibly controlling the reflection of electromagnetic radiation.

ADVANTAGE - The inventive mirror permits efficient and precise control over the reflection of visible **light** and other electromagnetic radiation. The reversible electro deposition approach of the inventive mirror offers significant cost and safety advantages compared to available electrochromic mirrors which require an invariant cell gap and which involve toxic chemicals. It employs the use of a solid state gel electrolyte which incorporates an electrochemically inert polymer stiffener which facilitates mirror fabrication, minimizes the

possibility of chemical or physical personal injury, and reduces sensitivity to cell leakage and atmospheric contamination by preventing convectional transport.

DESCRIPTION OF DRAWING(S) - The figure is a cross sectional view of the inventive electrochemical mirror.

First substrate 102
Second substrate 104
First electrode 106
Surface modification layer 108
Second electrode 110
Electrolytic solution 112
Metal ions 116
Negative electrical potential 118
Dwg.1/3

L21 ANSWER 8 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2000-464080 [40] WPIX
CR 2002-380701 [19]
DNN N2000-346223
TI Field emission device for computer, has controller to input voltages to second and third electrically conductive structure, and voltages are adjusted such that electron emission takes place from phosphorus material.
DC P85 T04
IN CATHEY, D A; CATHEY, J J
PA (MICR-N) MICRON TECHNOLOGY INC
CYC 1
PI US 6081246 A 20000627 (200040)* 16p <--
ADT US 6081246 A US 1996-746314 19961112
PRAI US 1996-746314 19961112
AB US 6081246 A UPAB: 20020701
NOVELTY - A controller (534) inputs voltages to electrically conductive structure, such that voltage input to third electrical conductive structure is more positive than that input to other two structures. Voltage input to second and third structures is adjusted such that electron emission take place from phosphorus material disposed on electrically conductive structure.

DETAILED DESCRIPTION - N-type single crystal silicon structure is disposed on a substrate (502). Insulating layers (510) disposed at predetermined portions on the silicon structure, have openings (506,508) for receiving and surrounding each electron emitting structures (516). Faceplates (522) is disposed at a predetermined distance above one of electrically conductive structure. Phosphorus material is disposed on the electrically conductive structures, to emit **light** when excited by electrons. The matrix structure (525) is disposed on the surfaces of third electrically conductive structure. A spacer is connected to the faceplate and second electrically conductive structure, maintains predetermined space between them. The voltage input to two structures is adjustable, such that it does not effect voltage change in other structures.

USE - For computers.

ADVANTAGE - Actively adjust pixel edge definition of images on screen display, to obtain viewers desired screen display effect. Ratio of anode voltage and excitation structure voltage, is actively adjusted to obtain on-line definition image.

DESCRIPTION OF DRAWING(S) - The figure shows the voltage application to extraction structure for adjusting spot of electron emission stream.
Substrate 502

Openings 506,508
Insulating layers 510
Electron emitting structures 516
Faceplates 522
Matrix structure 525
Controller 534
Dwg.7/10

L21 ANSWER 9 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 2000-340180 [30] WPIX
DNN N2000-348016 DNC C2000-140469
TI Liquid crystal display cell for passive and magnetic displays, has conductive layers integrated onto substrate between substrate and common electrode and separated by insulating layer.
DC L03 P81 P85 T04 U14
IN COLGAN, E G; LEVINE, J L; RUSSELL, G F; SCHAPPERT, M A
PA (IBMC) INT BUSINESS MACHINES CORP; (IBMC) IBM CORP
CYC 5
PI CN 1246638 A 20000308 (200030)*
JP 2000105670 A 20000411 (200030) 19p
US 6057903 A 20000502 (200041)B 20p
KR 2000016923 A 20000325 (200104)
US 6177918 B1 20010123 (200107) <--
TW 438988 A 20010607 (200175)
ADT CN 1246638 A CN 1999-111986 19990804; JP 2000105670 A JP 1999-230155 19990817; US 6057903 A US 1998-135959 19980818; KR 2000016923 A KR 1999-28044 19990712; US 6177918 B1 Div ex US 1998-135959 19980818, US 1999-364485 19990730; TW 438988 A TW 1999-112800 19990728
PRAI US 1998-135959 19980818; US 1999-364485 19990730
AB US 6057903 A UPAB: 20000831 ABEQ treated as Basic
NOVELTY - A liquid crystal display cell includes two conductive layers integrated onto a substrate, placed between the substrate and a common electrode and separated by an insulating layer; and an insulating film separating the conductive layer adjacent the common electrode and the common electrode.
DETAILED DESCRIPTION - A liquid crystal display cell includes:
(a) a substrate (24) with a common electrode (28);
(b) a substrate with a pixel electrode;
(c) a liquid crystal material placed between the electrodes;
(d) two conductive layers (23-1, 63) integrated onto the substrate (24), placed between the substrate (24) and the common electrode (28) and separated by an insulating layer (61); and
(e) an insulating film (65) separating the conductive layer (63) and the common electrode.
USE - For passive and magnetic display systems.
ADVANTAGE - The device can measure the contact position of a portion of a human body, e.g. finger, with a substrate.
DESCRIPTION OF DRAWING(S) - The figure shows a partial cross section of the display cell.
Conductive layer 23-1
Substrate 24
Common electrode 28
Insulating layer 61
Conductive layer 63
Insulating film 65
Dwg.5/12
AB CN 1246638 A UPAB: 20000905

NOVELTY - A liquid crystal display cell includes two conductive layers integrated onto a substrate, placed between the substrate and a common electrode and separated by an insulating layer; and an insulating film separating the conductive layer adjacent the common electrode and the common electrode.

DETAILED DESCRIPTION - A liquid crystal display cell includes:

(a) a substrate (24) with a common electrode (28);

(b) a substrate with a pixel electrode;

(c) a liquid crystal material placed between the electrodes;

(d) two conductive layers (23-1, 63) integrated onto the substrate (24), placed between the substrate (24) and the common electrode (28) and separated by an insulating layer (61); and

(e) an insulating film (65) separating the conductive layer (63) and the common electrode.

USE - For passive and magnetic display systems.

ADVANTAGE - The device can measure the contact position of a portion of a human body, e.g. finger, with a substrate.

DESCRIPTION OF DRAWING(S) - The figure shows a partial cross section of the display cell.

Conductive layer 23-1

Substrate 24

Common electrode 28

Insulating layer 61

Conductive layer 63

Insulating film 65

Dwg.5/12

L21 ANSWER 10 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1999-529827 [45] WPIX
DNN N1999-392666 DNC C1999-155966
TI Flat panel display using a reflective display over a liquid crystal **light** modulating layer.
DC G06 L03 P81 P84 P85 U14 W05 X12
IN STEPHENSON, S W
PA (EAST) EASTMAN KODAK CO
CYC 27
PI EP 943952 A2 19990922 (199945)* EN 11p
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
JP 11327463 A 19991126 (200007) 7p
US 6262697 B1 20010717 (200142) <--
ADT EP 943952 A2 EP 1999-200735 19990311; JP 11327463 A JP 1999-72582 19990317; US 6262697 B1 US 1998-45016 19980320
PRAI US 1998-45016 19980320
AB EP 943952 A UPAB: 19991116
NOVELTY - The display is formed using photographic coating techniques to form multiple coatings and comprises silver halide which is exposed and developed using conventional photographic processing techniques. The images are formed from developed silver which form conductive images which with a conductive top layer give a conductive path which can drive a liquid crystal to hide or reveal the images in the display.

DETAILED DESCRIPTION - Display for presenting selected images to a viewer comprising;

(A) Transparent substrate bearing in sequence, transparent electrically conductive coating, **light** modulating layer, and photosensitive layer adapted to be exposed and developed to provide viewable and conductive images. The **light** modulating layer is

effective in two conditions; (i) to prevent, (ii) to permit, the viewing of the viewable and conductive images.

(B) Electrical conduction means connected to the images and the coating for applying a field to selected images to cause the **light** modulating layer to change from a first to a second conduction so as to present the images for viewing.

USE - Flat panel displays.

ADVANTAGE - The display is cheap to make using conventional photographic coating technology, and can be exposed and developed using fast and inexpensive conventional photographic processing techniques.

DESCRIPTION OF DRAWING(S) - The drawings show a view and a section of a display panel including; (10) unprocessed sheet, (12) transparent polymer substrate, (13) ITO coating, (16) images, (17) barrier layer, (18) non-conductive traces, (30) **light** modulating layer, (40) circuit board, (45) circuit board trace, (47) contact pad, (50) power pin, (96) metallic silver.

Dwg.3b,5d/5

L21 ANSWER 11 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1999-095893 [08] WPIX
DNN N1999-069665
TI Two-terminal active wire electrode structure for active matrix liquid crystal display - has wire placed in grooves in transparent substrate and covered by insulating layer and-or semiconductor layer.
DC P81 U14
IN GE, S; GE, Y
PA (GLDI-N) GL DISPLAYS INC
CYC 82
PI WO 9900695 A1 19990107 (199908)* EN 35p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
US 5892558 A 19990406 (199921)
AU 9878057 A 19990119 (199922)
EP 991975 A1 20000412 (200023) EN
R: DE FR GB IT
JP 2002513513 W 20020508 (200234) 39p
ADT WO 9900695 A1 WO 1998-US11152 19980603; US 5892558 A US 1997-883117 19970626; AU 9878057 A AU 1998-78057 19980603; EP 991975 A1 EP 1998-926157 19980603, WO 1998-US11152 19980603; JP 2002513513 W WO 1998-US11152 19980603, JP 1999-505540 19980603
FDT AU 9878057 A Based on WO 9900695; EP 991975 A1 Based on WO 9900695; JP 2002513513 W Based on WO 9900695
PRAI US 1997-883117 19970626
AB WO 9900695 A UPAB: 19990224
The electrode structure comprises at least one conductive wire (30) having a semiconductor and-or insulating layer (32) over it. The wire and/or layer are attached to a transparent substrate (34). The wire is preferably attached to the substrate by means of an ultraviolet cured adhesive. The substrate defines grooves (38) into which the wire is placed. An array of separated electrodes (40) is formed on the substrate. The conductive wire, the layer(s) and the electrodes form an array of **diodes** connected in parallel. A first voltage is applied across the conductive wire and the electrodes to turn on the **diodes**, and a second

voltage is applied across the wire and the electrodes to turn off the **diodes**. Preferably, the substrate comprises glass or plastic. Preferably, the wire includes tantalum or chromium, and the insulating layer and/or semiconductor layer comprises tantalum oxide, or silicon nitride or organic layer. Preferably, the electrodes comprise transparent indium-**tin**-oxide, tantalum or chromium.

ADVANTAGE - Enables large screen display to be made at reasonable cost.

Dwg.2/8

L21 ANSWER 12 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1996-116518 [12] WPIX
DNN N1996-097470
TI Portable electronic device, e.g. for portable telephone or pager - has miniature binocular virtual image display having pair of viewing apertures and image generation appts. including two-dimensional array of **LEDs**.
DC P85 T04 W01 W05
IN JACHIMOWICZ, K E; LEBBY, M S
PA (MOTI) MOTOROLA INC
CYC 1
PI US 5491491 A 19960213 (199612)* 11p <--
ADT US 5491491 A US 1994-332170 19941031
PRAI US 1994-332170 19941031
AB US 5491491 A UPAB: 19960808
The device comprises a portable data source and a binocular virtual image display. The latter includes a pair of viewing apertures positioned for binocular viewing, and an image generation apparatus operably attached to receive data from the data source.

The image generation apparatus includes an array of at least 100 by 100 **LEDs** for providing, from the received data, a real image including either a number of lines of alpha-numerics, graphics, or both. The real image has a luminance of less than 15 fL. A fixed optical system produces, from the real image, a pair of virtual images one each perceivable through the pair of viewing apertures.

ADVANTAGE - Because virtual image is utilised, rather **tan** direct view image, and, therefore, amount of generated **light** can be very low, amount of electrical power is low and size of chip and display is very small.

Dwg.6/12

L21 ANSWER 13 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1996-078719 [09] WPIX
DNN N1996-065467
TI Multi-pixel liquid crystal display for bright colour display - has pixels provided with several liq. crystal cells having polymer dispersed liq. crystal material within and associated colour filters.
DC P81 U14
IN KOENIG, W
PA (AMTT) AT & T GLOBAL INFORMATION SOLUTIONS INT; (NATC) NCR INT INC; (NATC) NCR CORP
CYC 5
PI EP 693703 A1 19960124 (199609)* EN 27p
R: DE FR GB
JP 08054612 A 19960227 (199618) 13p
US 6166789 A 20001226 (200103)
ADT EP 693703 A1 EP 1995-305010 19950719; JP 08054612 A JP 1995-205100

19950720; US 6166789 A US 1994-279304 19940721
PRAI US 1994-279304 19940721
AB EP 693703 A UPAB: 19960305
The LCD device includes pixels (P1-P3) containing two or more liquid crystal cells provided with Polymer-Dispersed Liquid Crystal. The cells are also provided with respective colour filters (R,G,B). The display has Indium **Tin** Oxide (ITO) layers formed on glass sheets acting as electrode plates (P). The liquid crystal material lies between the plates.

The PDLC is placed in a transmissive state when an electric field is applied and in a reflective state by a reduction of the field. Each pixel filter creates a colour display and **light** can be introduced to the display by side **lights** (30) on either or both of the plate layers. The rear of the display has a black velvet surface. With no voltage across the plates **light** is scattered back to the front otherwise is passed to and absorbed by the velvet.

ADVANTAGE - Provides display with no polarising filters or mirrors. Utilises nearly 100% of **light**, requiring less **light** input. Increased battery life-time.
Dwg.23/23

L21 ANSWER 14 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1994-176668 [21] WPIX
DNN N1994-139181
TI Vehicle safety equipment which uses the speed of vehicle - has pair of magnets attached to rotatable drive shaft or similar related to road speed of vehicle which provides signal from reed relay caused by rotation of magnets during use.
DC Q16 Q17 S01 S02 X22
IN ALBERTYN, C H
PA (ALBE-I) ALBERTYN C H
CYC 1
PI ZA 9303811 A 19940330 (199421)* 19p
ADT ZA 9303811 A ZA 1993-3811 19930601
PRAI ZA 1992-4034 19920603
AB ZA 9303811 A UPAB: 19940715
The vehicle safety unit has small magnets attached to the vehicle drive shaft. A pick-up mounted on the vehicle body, near the magnets, includes a reed relay which closes and opens under influence of the rotating magnets. The relay pulse signal frequency is compared with a preset value in a comparator.

If te pulse frequency is less **tan** the preset value, an amber warning **light** is actuated at the vehicle rear, warning traffic.

ADVANTAGE - Continuous monitoring. (To be reissued in later week based on complete specification)
Dwg.1/1

L21 ANSWER 15 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1993-378900 [48] WPIX
DNN N1993-292614
TI Afocal optical system and multibeam recording appts. - uses paraboloid mirror and optical element with stereographic projection characteristics using predetermined calculated height of **light** beam as it leaves optical element.
DC P81 S06 T04 W02
IN HAYASHI, T; OKAZAKI, M; UEYAMA, K
PA (DNIS) DAINIPPON SCREEN MFG CO LTD; (DNIS) DAINIPPON SCREEN SEIZO KK

CYC 5
PI EP 571972 A2 19931201 (199348)* EN 44p
R: DE FR GB
JP 05333282 A 19931217 (199404)
US 5383052 A 19950117 (199509) 37p
US 5414551 A 19950509 (199524) 37p
EP 571972 A3 19940907 (199532)
ADT EP 571972 A2 EP 1993-108489 19930526; JP 05333282 A JP 1992-162202 19920527; US 5383052 A US 1993-65866 19930521; US 5414551 A Div ex US 1993-65866 19930521, US 1994-291393 19940816; EP 571972 A3 EP 1993-108489 19930526
PRAI JP 1992-162202 19920527; JP 1992-162209 19920527
AB EP 571972 A UPAB: 19940120
The system has a paraboloid mirror (26) located on the optical axis with a finite optical lens and an optical element located on the optical axis with a stereographic projection characteristic defined by a predetermined equation equating to the height of the **light** beam as it leaves the optical element.

The optical element is a second paraboloid mirror (22), both of which are off-axis paraboloid mirrors. An aperture stop is located at a point where the focal points of the first and the optical elements coincide with each other.

USE/ADVANTAGE - Multibeam recording appts. Compact system.
Dwg.5/28

L21 ANSWER 16 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1991-281633 [38] WPIX
CR 1993-018163 [02]; 1994-333380 [41]
DNN N1991-215255
TI Reconfigurable electro-chromatic and -chemical luminescent display - has matrix of electrode pairs mounted on substrate face up and side by side.
DC P73 P81 P84 P85 T04 U14
IN LEVENTIS, N; WRIGHTON, M S
PA (MOLE-N) MOLECULAR DISPLAYS INC; (MOLE-N) MOLECULAR DISPLAYS; (IGEN-N) IGEN INC
CYC 21
PI WO 9113381 A 19910905 (199138)*
RW: AT BE CH DE DK ES FR GB GR IT LU NL SE
W: AU JP KR
CA 2037014 A 19910827 (199146)
AU 9174756 A 19910918 (199150)
ZA 9101266 A 19911127 (199202)
US 5189549 A 19930223 (199310) 52p
EP 531298 A1 19930317 (199311) EN 94p
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
EP 531298 A4 19940309 (199529)
US 5444330 A 19950822 (199539) 36p
EP 531298 B1 19980128 (199809) EN 28p
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
DE 69128830 E 19980305 (199815)
ES 2114886 T3 19980616 (199830)
IL 97335 A 19980715 (199834)
CA 2037014 C 20011204 (200203) EN
ADT US 5189549 A US 1990-485379 19900226; EP 531298 A1 EP 1991-905939 19910226, WO 1991-US1322 19910226; EP 531298 A4 EP 1991-905939 ; US 5444330 A Div ex US 1990-485379 19900226, US 1993-19242 19930218; EP 531298 B1 EP 1991-905939 19910226, WO 1991-US1322 19910226; DE 69128830 E

DE 1991-628830 19910226, EP 1991-905939 19910226, WO 1991-US1322 19910226; ES 2114886 T3 EP 1991-905939 19910226; IL 97335 A IL 1991-97335 19910222; CA 2037014 C CA 1991-2037014 19910225

FDT EP 531298 A1 Based on WO 9113381; US 5444330 A Div ex US 5189549; EP 531298 B1 Based on WO 9113381; DE 69128830 E Based on EP 531298, Based on WO 9113381; ES 2114886 T3 Based on EP 531298

PRAI US 1990-485379 19900226; US 1993-19242 19930218

AB WO 9113381 A UPAB: 20020114

The non emissive display pixel comprises a substrate and a pair of electrodes mounted face up and side by side on one side of the substrate and close to each other. One of the electrodes is coated with an electrochromic chemical substance, and a layer of ionically conductive electrolyte is included to complete an electrochemical cell. The second electrode has a material electrochemically complementary to the electrochromic material on the first to minimise the tendency for decomposition reaction of the second electrode or the electrolyte.

If the complementary electrochemcial material is not included on the second electrode of the pair, changes in the redox (electrons or holes) of the electrochromic material on the row electrode cause either corrosion of the column electrode itself or deterioration of the electrolyte, reducing the lifetime cycle of the array.

USE/ADVANTAGE - For microfabrication of integrated circuits, emmisive and non-emissive displays. Provides higher density of pixels with all electrodes on single substrate. Both electrodes and bus-bars are of metal, avoiding need to address pixels through resistive **tin** oxide electrodes. @(94pp Dwg.No.1/20)@

L21 ANSWER 17 OF 29 WPIX (C) 2002 THOMSON DERWENT

AN 1991-119401 [17] WPIX

DNN N1991-091923

TI Production of grey scale images using pixellated exposure devices - adjusts exposure conditions so that variation in average transmission over pixel area is minimised.

DC P75 P81 P84 T04 W02

IN LEA, M C; MICHAEL, C L; MICHAEL, C

PA (MINN) MINNESOTA MINING & MFG CO

CYC 13

PI EP 424175 A 19910424 (199117)*
R: BE CH DE ES FR GB IT LI NL SE
AU 9064721 A 19910426 (199124)
CA 2028050 A 19910421 (199127)
JP 03254960 A 19911113 (199201)
AU 633990 B 19930211 (199313)
EP 424175 A3 19920527 (199331)
EP 424175 B1 19970319 (199716) EN 10p <--
R: BE CH DE ES FR GB IT LI NL SE
DE 69030232 E 19970424 (199722) <--

ADT EP 424175 A EP 1990-311515 19901019; JP 03254960 A JP 1990-281747 19901019; AU 633990 B AU 1990-64721 19901018; EP 424175 A3 EP 1990-311515 19901019; EP 424175 B1 EP 1990-311515 19901019; DE 69030232 E DE 1990-630232 19901019, EP 1990-311515 19901019

FDT AU 633990 B Previous Publ. AU 9064721; DE 69030232 E Based on EP 424175

PRAI GB 1989-23708 19891020

AB EP 424175 A UPAB: 19931118

The method forms grey-scale images on a photosensitive imaging medium by means of an exposing apparatus comprising a pixellated array of exposure sources, e.g., an array of **light emitting**

diodes or liquid crystal shutters. The imaging medium is capable of spatial resolution finer than the pixel dimensions of the exposing apparatus.

A transmission density is developed in imaged areas that varies non-linearly with the exposure energy received by imaged areas. The exposure conditions are adjusted such that the variation in average transmission over a whole pixel area from image pixel to image pixel caused by spatial energy distribution variations is less than 5% for the same energy)delivered to each pixel area.

ADVANTAGE - Reduces major intensity variations. @(10pp Dwg.No.1/7)@
1/7

L21 ANSWER 18 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1988-065988 [10] WPIX
DNN N1988-049963
TI Photoconductive electroluminescent display with low pixel density - reduces width of transparent electrodes at least over active segments around matrix crosspoints.
DC P85 T04
PA (THIO-I) THIOULOUSE P
CYC 5
PI EP 259213 A 19880309 (198810)* FR 10p
R: DE FR GB NL
FR 2602897 A 19880219 (198815)
JP 63102199 A 19880507 (198824)
EP 259213 B 19911204 (199149)
R: DE FR GB NL
DE 3774970 G 19920116 (199204)
ADT EP 259213 A EP 1987-401894 19870817
PRAI FR 1986-11808 19860818
AB EP 259213 A UPAB: 19930923
The pixel density, or proportion of screen area occupied by the overlaps (44) of row and column electrodes, is reduced by adoption of narrow row electrodes (40) of Al and column electrodes (42) of indium-**tin** oxide. These are all 50 microns wide at a spacing of six times their width.

To overcome the voltage drop along the column electrodes (42) with consequent nonuniform striking and extinction characteristics over a very large screen, the portions of column electrode lying between crosspoints (44) may be extended to full width to reduce their resistance.

ADVANTAGE - With pixels covering between 2.5 and 5% of screen, photoconductor-**electroluminescence** memory effect is highly immune to ambient lighting and stray-coupling halo, relatively high excitation frequencies can be used, and power consumption reduced substantially.
1/7

L21 ANSWER 19 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1986-219478 [34] WPIX
DNN N1986-163810
TI LCD with memory capability - has photoconductive layer to store data for display.
DC P81 P85 T04 U14
IN SCHWEDES, W
PA (LICN) LICENTIA PATENT-VERW GMBH
CYC 1
PI DE 3504887 A 19860814 (198634)* 17p

ADT DE 3504887 A DE 1985-3504887 19850213
PRAI DE 1985-3504887 19850213
AB DE 3504887 A UPAB: 19930922
The LCD panel has a top substrate (1) and bottom substrate (2) of glass, each with a thickness of 1mm and a gap of 1 micron. The inner surfaces of the substrates have an electrode coating (3,4) of indium-**tin** -oxide that is transparent and are structure in strips at right angles to each other to form a matrix.

The electrode surfaces are covered by a transparent photo conductor layer (10) of Zn.Cd. These are covered with a protective and orientation layer of SiO2 of 60mm thickness. Between the layers is a liquid crystal layer. The panel is illuminated by a **light** source (9). The display stores data in optical form by applying signals between two voltage levels.

ADVANTAGE - High contrast. Fast response.
1/4

L21 ANSWER 20 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1986-095669 [15] WPIX
DNN N1986-070118
TI Liquid crystal display device for oscilloscope - has pair of transparent plates with respective array of conductors disposed on inner opposed surfaces and connected to voltage source.
DC P81 P85 S01 T04 U14 V07
IN BOHMER, W
PA (CONT-N) CONTROL INTERFACE CO LTD
CYC 7
PI EP 177331 A 19860409 (198615)* EN 41p
R: DE FR GB IT NL
US 4690509 A 19870901 (198737)
CA 1249678 A 19890131 (198912)
ADT US 4690509 A US 1984-656972 19841002
PRAI US 1984-656972 19841002
AB EP 177331 A UPAB: 19930922
A viewing screen includes a thin layer of nematic liq. crystal material disposed between the transparent plates, and which is transparent in the absence of an applied electric field. The first array of conductors (20) is arranged to extend vertically with the display screen disposed in a vertical plane. The conductors of the second array (40) will then extend horizontally. The conductors are formed by electrodeposition of a layer of indium-**tin** oxide on the respective glass plate.

Each conductor is about seven to ten microns wide and there are about two hunded horizontally-disposed conductors (40) and sixty four vertically-disposed conductors (20). Each conductor (20) is connected to one of a set of tracks on a printed circuit board and each track connects to a respective output channel of an analog multiplexer (70).

USE/ADVANTAGE - Is compact and **light**-weight and can be supplied from battery for use as portable oscilloscope or ERG device. Very low power consumption and voltage threshold, increased lifetime; wide viewing angle in reflecting mode of operation; no image washout for high ambient **light** levels.
3/14

L21 ANSWER 21 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1985-276204 [44] WPIX
DNN N1985-206129
TI Cathode ray tube for computer manipulation - has screen externally coated

with piezoelectric polymer under earthed conductive layer.
DC P85 T01 T04
IN STRACHAN, J
PA (STRA-I) STRACHAN J S; (SYRI-N) SYRINX INNOVA LTD
CYC 12
PI WO 8504740 A 19851024 (198544)* EN 8p
RW: AT BE CH DE FR GB IT LU NL SE
W: US
EP 176540 A 19860409 (198615) EN
R: AT BE CH DE FR GB IT LI LU NL SE
US 4689614 A 19870825 (198736)
EP 176540 B 19881026 (198843) EN
R: AT BE CH DE FR GB IT LI LU NL SE
DE 3565901 G 19881201 (198849)
ADT WO 8504740 A WO 1985-GB132 19850401; EP 176540 A EP 1984-901507 19840401; US 4689614 A US 1985-810329 19851204
PRAI GB 1984-8658 19840404
AB WO 8504740 A UPAB: 19930925
Tube has a transparent layer (20) of piezoelectric polymer applied to the screen (12) exterior, and a system for monitoring the electron beam current to detect when it scans of an area of localised electric charge created in the layer due to pressure ot temp. change.
The layer is pref. pof polyvinylidenefluoride and is coated with a transparent conductive layer (22) connected to earth. The system pref. includes a current sensing loop (24) around the electron beam path (26). The first layer is pref. adhered to the screen by nonconductive contact adhesive and the outer layer is of vapour deposited indium **tin** oxide, copper or gold.
USE/ADVANTAGE - E.g. for selecting from displayed menu or creating or amending graphics in computer-aided design, and can be used by touching with stylus or finger, or by using a **light** pen.
1/1

L21 ANSWER 22 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1985-236481 [38] WPIX
DNN N1985-177115
TI **Light** valve display device using liquid crystal - has array of reflective electrodes behind crystal connected electrically to integrated circuit through opaque layer.
DC P81 P85 U14 V07
IN DEBENEDETT, E
PA (VIDI-N) VIDIUM INC
CYC 16
PI WO 8504023 A 19850912 (198538)* EN 23p
RW: AT BE CH DE FR GB LU NL SE
W: AU DK JP KP US
AU 8541173 A 19851024 (198549)
EP 174983 A 19860326 (198613) EN
R: AT BE CH DE FR GB LI LU NL SE
US 4602850 A 19860729 (198633)
JP 61501475 W 19860717 (198635)
CA 1244164 A 19881101 (198848)
ADT WO 8504023 A WO 1985-US342 19850305; EP 174983 A EP 1985-901690 19850305; US 4602850 A US 1984-587689 19840308; JP 61501475 W JP 1985-501289 19850305
PRAI US 1984-587689 19840308
AB WO 8504023 A UPAB: 19930925

Selective control of a two-dimensional array of the fixed electrodes (13,15,17) is effected by the integrated circuit (27). A layer of insulating silicon dioxide (29) and the opaque shield (33) separate the integrated circuit from the fixed array electrodes. Behind each electrode a small aperture (35) in the screen allows passage of a respective conductor (31) connecting the electrode to the circuit. A layer (19) of an optically transparent insulator e.g. silicon dioxide surrounds the electrodes and separates them from the layer (21) of liquid crystal sandwiched by a further layer.

A transparent conductive layer (25) of **tin** oxide provides a path to establish a potential difference between one or more fixed electrodes for changing the state of the liquid crystal layer. The shield can be used as a control electrode to provide a biasing electrostatic field for the liquid crystal.

ADVANTAGE - Low power consumption. Small size.

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L21 ANSWER 23 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1982-E4714E [16] WPIX
TI Electric gas discharge lamp for advertising display - has central electrode comprising wire in tube and outer conductive deposit forming second electrode.
DC P85 W05 X26
PA (CHOW-I) CHOW S C
CYC 9
PI FR 2490378 A 19820319 (198216)* 38p
NL 8104100 A 19820401 (198217)
DE 3135972 A 19820429 (198218)
GB 2087137 A 19820519 (198220)
JP 57063756 A 19820417 (198221)
AU 8178245 A 19830609 (198330)
GB 2087137 B 19840830 (198435)
US 4471350 A 19840911 (198439)
CA 1185791 A 19850423 (198521)
DE 3135972 C 19910627 (199126)
IT 1212567 B 19891130 (199150)#
NL 192160 B 19961001 (199644) 20p
ADT GB 2087137 A GB 1981-26893 19810904; US 4471350 A US 1981-299613 19810904; NL 192160 B NL 1981-4100 19810904
PRAI JP 1981-104754 19810704; JP 1980-127842 19800912; JP 1980-152845 19801024
AB FR 2490378 A UPAB: 19930915
The lamp (P) comprises a glass tube made either of soft glass, such as soda glass, or alternatively a hard glass such as boro-silicate glass. The tube contains one of the inert gases - neon, krypton, or xenon- under a pressure of a few mm Mg. A linear electrode (2) is mounted inside the tube, extending along its full length. If the glass is soft then a length of Dumet wire is used, whilst, if the glass is hard a tungsten wire is used. The electrode also carries a deposit of gas absorbing chemical which removes impurities discharged during operation which may otherwise reduce the lamps life.

A second electrode (3) is formed outside the glass tube extending over the full length. The electrode is formed by pulverising an aqueous solution of a **tin** - halogen compound in order to atomise it for application to the glass surface at a temperature of 500 - 700 deg. C. This forms a conducting, transparent layer. A circuit is provided to generate ac or pulse signals to the two electrodes of the discharge lamp.

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L21 ANSWER 24 OF 29 WPIX (C) 2002 THOMSON DERWENT
AN 1977-79928Y [45] WPIX
TI Electrochromic display device contg. coloured powder - which may be mfd. at low cost and in small sizes suitable for wrist watches.
DC E37 L03 P81 P85 S02 S04 V07
PA (SUWA) SUWA SEIKOSHA KK
CYC 1
PI JP 52114343 A 19770926 (197745)*
PRAI JP 1976-31039 19760322
AB JP 52114343 A UPAB: 19930901
Electrochromic element used is e.g. bromoviologen and WO3, and coloured powder e.g. MgO TiO2, Al2O3, **TiN** ZrN or HfN. Example of cell comprises glass base plate; display electrode (formed by e.g. etching transparent electrode such as SnO2 or In2O3); reference electrode (e.g. AgBr); glass base plate; opposite electrode (e.g. Ag Br); spacer, and electrochromic element contg. coloured powder.
Coloured powder increases contrast of display. ZrO2 powder of **light** yellow colour gives a reddish violet display with bromoviologen.

L21 ANSWER 25 OF 29 JAPIO COPYRIGHT 2002 JPO
AN 2000-046589 JAPIO
TI INDICATION DISPLAY BOARD USING ORGANIC THIN FILM **ELECTROLUMINESCENCE** ELEMENTS
IN SAKABE SETSU
PA YAZAKI CORP
PI JP 2000046589 A 20000218 Heisei
AI JP 1998-213698 (JP10213698 Heisei) 19980729
PRAI JP 1998-213698 19980729
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000
AB PROBLEM TO BE SOLVED: To provide an indication display board at a low cost wherein an organic thin film **electroluminescence** element is used, use efficiency of **light** is high and consumption power is little.
SOLUTION: An ITO(indium, **tin**, oxide) electrode 2, an organic compound layer 3, and a metal electrode layer 4 as a rear electrode are formed on a surface glass plate 1 by vacuum deposition. The respective layers are sandwiched by the surface glass plate 1 and a rear glass plate 5. A pattern of the metal electrode layer 4 is formed of a pattern of a display part 9 like a scale. In the part except the display part, an opaque printed layer 6 is formed as a **light** shielding layer. By applying a current to the ITO electrode 2 and the metal electrode layer 4, only the part of the organic compound layer 3 which corresponds to the display part 9 generates a **light**. When the current is cut off and the **light** is not generated, the display part 9 is displayed by luster of the metal electrode layer 9.

L21 ANSWER 26 OF 29 JAPIO COPYRIGHT 2002 JPO
AN 1999-235846 JAPIO
TI EXPOSURE DEVICE
IN REINTEN HANS
PA OCE TECHNOL BV
PI JP 11235846 A 19990831 Heisei
AI JP 1998-328085 (JP10328085 Heisei) 19981118

PRAI NL 1989-1230 19890517
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
AB PROBLEM TO BE SOLVED: To make stray **lights** developed by reflected **lights** inside a device as small as possible by a method wherein the width of an aperture arranged between a convergent glass fiber array and **light emitting** elements is made to be equal to the sum of the length of the **light emitting** elements and the product of the distance between the **light emitting** elements and the aperture and the tangent of the maximum incident angle of convergent glass fibers. SOLUTION: An aperture is arranged between an **LED**(**light emitting** element) array and a Selfoc arrangement. The distance between this aperture and the **light emitting** element and the width of the aperture is selected so as to check the rays emitted from the **light emitting** element(**LED**) by an angle, which is larger than the maximum incident angle (β) (or about 24°) of convergent glass fibers with the aperture under the consideration normal to the **light emitting** element array. Under the consideration normal to the **light emitting** element array, when let (c) be the length of the **light emitting** element, the width (d) of the aperture and the distance S measured between the **LED** and the aperture satisfies the relationship: d=c+S.**tan**β as for the maximum incident angle βof the convergent glass fibers.

L21 ANSWER 27 OF 29 JAPIO
AN 1996-183199 JAPIO
TI END EMISSION TYPE **LIGHT EMITTING** ELEMENT AND MANUFACTURE THEREOF, MOUNTING METHOD FOR THE ELEMENT, WIRING BOARD FOR THE ELEMENT, AND OPTICAL PRINT HEAD
IN TOYAMA HIROSHI; CHIBA MIO; TAKAHASHI WATARU; SHIMIZU TAKAATSU; NAKAMURA YUKIO
PA OKI ELECTRIC IND CO LTD
PI JP 08183199 A 19960716 Heisei
AI JP 1994-326625 (JP06326625 Heisei) 19941228
PRAI JP 1994-326625 19941228
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1996
AB PURPOSE: To prevent attenuation of **light** to be converged by a **light** converging optical system, blur of a **light emitting** spot, and unnecessary beam, by specifying a difference in height between a bottom end of a **light emitting** layer of an end emission type **light emitting** element and a top face of a protrusion. CONSTITUTION: In an end emission type **LED** array 10, when an overhanding dimension of a protrusion 23 is L, a **light** converging angle of a **light** converging optical system to be used in opposition to the end emission type **LED** array 10 is θ, and a difference in height between a bottom end of a **light emitting** layer 13 and a face which has been a bottom face of the removed protrusion 23 is h, the difference in height h is set to a value which satisfies h>=L.**tan**θ. The overhanging dimension L is of a value previously decided in consideration of impact at separation by cutting. The **light** converging angle θ of the **light** converging optical system is of a value previously decided by the **light** converging optical system to be used.

L21 ANSWER 28 OF 29 JAPIO COPYRIGHT 2002 JPO
AN 1992-060688 JAPIO
TI INFORMATION DISPLAY DEVICE
IN FUKUDA MINORU
PA MATSUSHITA ELECTRIC IND CO LTD
PI JP 04060688 A 19920226 Heisei
AI JP 1990-173441 (JP02173441 Heisei) 19900629
PRAI JP 1990-173441 19900629
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1992
AB PURPOSE: To automatically detect trouble to display it in a short period of time by writing test data and detecting the change of the output current of an **LED** driving power source of a display device and comparing it with a prescribed current change and displaying the result.
CONSTITUTION: When a CPU 21 generates test data '1' and writes it n a display device 1, the driving current flows from a power source device 5 to anode drivers 12 and cathode drivers 13 to **light** all bits of **LEDs (light emitting diodes)** 14.
Since the driving current of **LEDs** 14 at this time is considerably increased in comparison with that for non-lighting, this current change is detected by a current detector 6 and is read into a controller as a signal, and it is discriminated whether the change is larger than a certain value or not, and normalcy is displayed on a monitor 24 when it is larger **tan** the certain value, but abnormality is displayed there when it is not larger. Next, data '0' is generated and is written in the display device 1, and it is discriminated whether the output is normal or not and the result is displayed in the same manner. Thus, the presence or the absence of trouble of the display device 1 is automatically detected and displayed in a short period of time.
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L21 ANSWER 29 OF 29 JAPIO COPYRIGHT 2002 JPO
AN 1984-109071 JAPIO
TI OPTICAL WRITING HEAD OF ELECTRONIC PHOTOGRAPHIC TYPE PRINTER
IN YAMAZOE HIROSHI
PA MATSUSHITA ELECTRIC IND CO LTD
PI JP 59109071 A 19840623 Showa
AI JP 1982-219811 (JP57219811 Showa) 19821214
PRAI JP 1982-219811 19821214
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1984
AB PURPOSE: To obtain a cheap writing head that can make high speed print by providing a thin film electric field **light** emission plate using a zinc sulfide film activated by manganese as a **light** source.
CONSTITUTION: The thin film electric field **light** emission plate used as a **light** source of the print head consists of a base body 16 made of glass etc., electrodes 17, 18, insulating layers 19, 20 that sandwich manganese-bearing zinc sulfide layer 21 between and stabilizes the **light** emission plate, and leads 22, 23 to impress alternating voltage to electrodes 17, 18. The base body 16 is made of transparent material, and the electrode 17 is made up of a thin, transparent conductive film of oxide of **tin** or a thin transparent conductive film of indium oxide and formed by vapor deposition etc. Yttrium oxide, aluminum oxide etc. is used for the insulating layers 19, 20, and the manganese-bearing zinc sulfide layer 21 is formed to the thickness of above 1,500Å by electron beam vapor deposition making manganese-bearing zinc sulfide a source.
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